Water Users’ Associations Development in Southeastern European Countries

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editors

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Part I

Workshop Overview
Development of Water Users’ Associations in Southeastern European Countries: An Overview

Intizar Hussain

Background

The water sector in Southeastern European countries (SEE) has undergone dramatic changes since the collapse of socialist economies and the decline in state subsidies. Over the last decade, the sector has suffered from lack of funds to properly maintain the water control systems, and to carry out improvements and modernization. Institutional and legal changes have also affected the performance of the sector. These issues are posing a great challenge for the water sector, and there is a need for reforming the sector including enacting water laws that allow more participation on the part of users in water resource management, and that are harmonized with EU directives. In view of these issues, many of the SEE countries are now re-organizing their water sector through initiating projects, with assistance from international donors that involve development and improvements of water infrastructure with greater emphasis on participatory approaches to water resources management and empowerment of users. The World Bank has initiated a number of projects in several SEE countries. These include, for example, Albania Water Resources Management Project that finances systems rehabilitation and institutional support for irrigation, drainage and flood management, including a subcomponent to establish water users associations (WUAs), and provide training and technical support; Romania Irrigation Rehabilitation and Reform Project that aims to rehabilitate main irrigation schemes, undertake a substantial institutional and financial reform of the irrigation sector, support development and strengthening of WUAs, and includes technical support for sustainable water management; Serbia Irrigation and Drainage Rehabilitation Project for rehabilitation of essential infrastructure for flood control, drainage and irrigation, and to provide technical assistance for institutional changes in the sector, and other similar projects in Macedonia, Bosnia & Herzegovina and other countries in the region. In all these projects, the development of WUAs and empowerment of users, including the women, is an important component.

Key Characteristics of the SEE Region

The SEE countries of focus (Romania, Albania, Bosnia & Herzegovina, Croatia and Serbia) have a total land area of around 47.6 million hectares with a population of 44.5 million people. There is much variation among these countries with respect to their levels of socio-economic and agricultural development. For example, per capita GDP in Croatia is US$ 7724 while in case of Serbia it is only US$ 1240. The share of agriculture in GDP is 50 percent for Albania while it is 13 percent for Romania and just 6.5 percent for Bosnia & Herzegovina.

The topography of the region is comprised of mountains and hilly plateaus that separate the river basins from the plains. The climate in the region varies substantially between the coastal areas and the inland portions of the Balkan Peninsula. The Adriatic coasts of Albania, Croatia, Bosnia & Herzegovina and Serbia have a typical Mediterranean climate with warm dry summers and mild rainy winters. The Black Sea coast of Romania varies between temperate and Mediterranean climates. The region has considerable seasonal and annual rainfall variability.

The water resource base in SEE countries depicts much variability in terms of quantity as annual renewable water resource availability in Romania is 212 billion m$^3$ while in case of Serbia it is 25.1 billion m$^3$. Similarly, average annual precipitation ranges from 701 mm in Romania to 1485 mm in Albania. Most of the countries in the region receive water from trans-boundary rivers, with average dependency ratio (of these five countries) of about 51 percent. Romania, Croatia and Serbia receive more than half of their water resources from other countries, while Albania and

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Bosnia & Herzegovina are less dependent on trans-boundary rivers for their water resources. Further, most of the renewable water resources come from the rivers that have significant hydrological variability (World Bank, 2003)2.

In order to deal with the seasonal fluctuations of water resource availability, the SEE countries have built irrigation systems according to their needs. Romania has the most reservoir capacity among these five SEE countries i.e. 14 billion m³ while Croatia has the reservoir capacity of just 1.53 billion m³. In general, irrigation is imperative for the agriculture of this region. During the socialist period, high priority was given to several irrigation and drainage systems. Once the economies of these countries started to decline, many irrigation systems entered into a vicious cycle of inadequate budget allocation, deferred maintenance, system deterioration and unreliable water delivery. The deterioration of irrigation schemes and resulting decline in irrigated area has led to drastic decrease in water use for this purpose. Now all SEE countries are working to put in place institutional frameworks, regulations and economic incentive regimes that reflect multi-stakeholder consensus, and at the same time provide for efficient use of water and adequate service delivery.

**Regional Workshop on Development of WUAs in SEE Region**

A 4-day regional workshop on ‘Development of Water Users’ Associations in Southeastern European Countries’ was held during June 4-7, 2007 at the World Bank’s Romania office in Bucharest, Romania. The main objective of the workshop was to share experiences on participatory irrigation management (PIM) reforms and to discuss options and solutions for the development and sustainability of WUAs in the SEE region. The workshop had three main components: (i) discuss and deliberate upon the issues and constraints facing the agricultural water/irrigation sector in the countries of the region today with particular focus on WUAs, including gender issues, and the role of women in water management; (ii) share country experiences on WUAs, promote cross-country learning and document the lessons learnt; and (iii) learn from international experiences on PIM /WUAs reforms and best practice examples – with ultimate aim of building capacity of key stakeholders involved in reforms, and supporting and strengthening on-going reforms through development of sustainable WUAs in the region. With financial support from the Bank Netherlands Water Partnership Program, the workshop was organized by the Romanian Ministry of Agriculture and Rural Development, World Bank and the World Bank Institute (WBI), and was facilitated by the Executive Director of the International Network on Participatory Irrigation Management (INPIM). The workshop was attended by 28 participants – representing relevant ministries, project management units (PMUs), WUAs and the World Bank including WBI and the Bank’s country offices from 5 countries: Romania, Albania, Bosnia & Herzegovina, Croatia and Serbia. The workshop was opened by Mr. Dacian Ciolos, Under-Secretary of the State, Ministry of Agriculture and Rural Development of Romania and Mr. Usaid El Hanbali, Senior Water Resources Engineer, the World Bank, Washington DC. The 4-day program included detailed country presentations and discussions on experiences with WUAs development, presentation on the World Bank support to WUAs development in the SEE region through infrastructure rehabilitation and institutional reform projects, presentations on international experiences with institutional reforms in irrigation sector, smaller groups discussions, and a one-day field visit to Sadova-Corabia irrigation scheme in Romania the detailed schedule of the workshop is given in Annex of the report.

This part provides an overview of development of water user associations in Southeastern European countries – based on the discussions and presentations of country papers at the regional workshop. The summary and conclusions of the workshop findings are presented in the last section of this part.

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2 World Bank (2003), Water Resources Management in South Eastern Europe, Volume 1, Issues and Directions, Environmental and Socially Sustainable Development, Europe and Central Asia Region, ECSSD, the World Bank, Washington DC.
Overview of Country Paper Presentations

Romania

Background

Romania is a fairly large country in the SEE region with a land area of 238,391 km² and population of 22.4 million people. The climate is temperate continental type. The country covers a significant part of Danube river basin. Agricultural land spreads over an area of 14,852.3 thousand ha which accounts for 62 percent of the total area. Arable land area represents 63.4 percent of the total agricultural area. The grain cereals cover more than 60 percent of the cropped area, and the major agricultural produce comes from cereals (particularly maize), vegetables, potatoes and fruits.

Agriculture accounts for 13 percent of GDP and employs around 42 percent of country’s labor force. High frequency of droughts in the country results in reduction of potential yields. To decrease drought risks and to increase production, the country has developed irrigation systems covering around 3 million ha. These systems were constructed during the socialist regime before 1989, and were designed to irrigate mainly maize, wheat, sunflower and sugar beet crops on state lands. An essential aspect of Romanian agricultural transition after the socialist regime is emergence of market oriented farming and reformation of land tenure systems in the country. The private sector now owns over 75 percent of the agricultural land, and farmers sell their produce in the markets, though output marketing is major problem facing the farmers. Household average farm landholding is around 2.5 ha.

Romania is relatively poor in water resources, with annual average per capita water availability of 1870 m³. Industrial sector uses the highest amount of water followed by agriculture and domestic sector. Main source of irrigation water in the country is the Danube River and its tributaries, which supply irrigation water to approximately 75 percent of the total irrigated area and the largest part of such area is located on terraces along the Danube River course. In some cases, irrigation schemes are located over an elevation of 150 m above the water level in source, and thus electric power consumption for water lifting is high making irrigation very costly. In general, Romanian irrigation systems are characterized by three terraces. Water is delivered to the first terrace through a gravity supply canal after a primary pump station lifts water from the Danube (or a tributary) and a main pump station again lifts the water to the terrace. Pressure pump stations (SPPs) and buried pipelines supply water for overhead field sprinkler systems that deliver the irrigation water to crops. Higher terraces are supplied by successive second and third lift pump stations on the main supply canals. The overall static lift to the highest terraces can reach over 200 m. The World Bank supported study on Irrigation and Drainage (1992-94) suggests that irrigation is not economical in the higher terraces even if agriculture is re-developed and that it should be discontinued so as to avoid further wastage of resources. The study conclusions suggest that irrigation of about 50 percent of the total irrigated area is uneconomical even if the irrigation schemes are rehabilitated and the cropping patterns are changed to most valuable crops. The old system of pricing/charging for irrigation (at the level of 1994) used to transfer most of the costs and all risks to the state budget and provided no incentives for developing an economically viable irrigation sector. Uniform tariffs and variable subsidies in place at that moment prevented focus on areas where irrigation was economical.

Participatory Irrigation Management (PIM) Reforms – Development of WUAs

Considering the above-mentioned and other related issues, the Government of Romania, with support from the international donors including the World Bank, has initiated reforms which involved restructuring of the governmental agency responsible for the management of the irrigation sector, transfer of management of distribution facilities to farmers organized into Water Users Associations (WUAs), and streamlining state subsidies for irrigation with a switch of these subsidies from the supplier of services to direct allocation to the water users and rehabilitation of the economically viable irrigation schemes. Based on the initial legal framework on WUAs adopted in 1999, first four pilot WUAs were formed during first quarter of 2000. Subsequently, the initial legal framework was amended.
and the new Law (‘Land Reclamation Law’) was issued in 2004/05 which specified rules and regulations for establishing WUAs, referred to as Water User Organizations (WUOs), restructuring of government institutions, new systems of irrigation charging, cost recovery and state subsidies to the sector.

The main steps involved in WUOs establishment process included a foundation meeting called upon by a voluntary initiative committee, election of administrative committee, preparation and approval of WUO’s statute and registration of an organization into a national register of WUOs with the Ministry of Agriculture which serves as a regulatory authority for WUOs. The new Law provides some minimum provisions that the statute of each WUO must include. In general, the internal structure of WUOs consists of a general assembly, management board and a chairperson. The general assembly is composed of all members. The members consist of natural and legal persons who own or use the agricultural land. The assembly must meet at least once a year and it deliberates by a simple majority vote. The management board is composed of at least three members elected for three years. A chairperson is elected from the members of the management board and represents the WUO in all aspects. WUO staff is separate for the administration and execution. WUOs can undertake purchase of water and its distribution to their members and non-members in the area under their jurisdiction. They can also operate, maintain and replace the irrigation facilities and equipment. WUOs can levy and collect from their members on-farm irrigation water supply charges, annual membership fee on the basis of the size of land owned or used, and operation and maintenance charges. WUOs can create reserve funds. WUOs can also own irrigation infrastructure and related equipments on demand basis. Under the on-going World Bank assisted project, financial support is available to active WUOs meeting certain criteria, including their financial contributions to project activities.

So far, 248 WUOs covering an area of 634,000 ha have been established in the country, with most of them in eastern part of the Romanian plain with great tradition of irrigation and where the risk of drought is significant. Also, most of the WUOs are established on lower terraces (with 80 percent of WUOs’ territories located below 70 m pumping head) where operations are relatively cost effective. Of the WUOs established so far, 69 percent are commercial WUOs with commercial companies as their members, and the remaining are non-commercial or ordinary WUOs with individual user membership. The commercial WUOs are transforming into business entities; they are financially sound and are helping in transferring management of irrigation infrastructure to the private sector. The ordinary or non-commercial WUOs, which cater to mostly small farmers, are not financially strong and rely on subsistence budget. Their income depends on payments from members, which depend on whether members irrigate in a particular crop season, which in turn depends on whether and how much it rains during the season.

Overall, the establishment of WUOs is generally perceived to be beneficial in protecting and improving irrigation systems, improving quality of irrigation services, and reducing cost of irrigation delivery. Overall fee collection rate is high at over 90 percent, although fee level is very low (as the fee accounts for only 10-20 percent of actual irrigation tariff/cost). Scheme level federations of WUOs are yet to be established. Main challenges and issues faced in implementing irrigation reforms include: identifying and focusing on economically viable irrigation schemes, concerns over phasing out of irrigation subsidies and full O&M cost recovery, resistance from the irrigation agency (National Land Reclamation Administration) for handing over of the infrastructure to WUOs, and increasing cost of much needed rehabilitation of deteriorating irrigation infrastructure.

**Key Points**

1. While the share of agriculture in the country’s GDP is only moderate, the sector continues to be important as it provides livelihoods to significant proportion of population in the country. Many of the large irrigation systems built, operated and maintained with state budgets during the socialist regime are no longer economically viable as cost of irrigation is very high and there is significant dependence on state subsidies for their operations and maintenance. Uniform tariffs and variable subsidy regimes in the past have prevented focus on areas where irrigation is economical. There may be high social and environmental cost of abandoning the economically unviable schemes.

2. The country has recently initiated PIM/WUAs reforms with formulation of new legal framework and other related enabling instruments, and most of the WUAs have been established only during the past two years. While the initial results are mixed, there is a need to further support and strengthen these fairly young WUAs, including their regular monitoring and performance evaluation.
3. Main issues faced in implementing irrigation sector reforms in the country are: identifying and focusing efforts on economically viable irrigation schemes, concerns over phasing out of irrigation subsidies and full O&M cost recovery, resistance from the irrigation agency for handing over of the infrastructure to WUOs, and increasing cost of much needed rehabilitation of deteriorating irrigation infrastructure.

Albania

Background

Albania is a small country with a land area of 28,000 km$^2$ and population of 3.5 million people. The country is divided into three agro-ecological zones, with substantial variation in annual rainfall: the fertile coastal plains (800-1000 mm), the intermediate hilly region (1600-2000 mm) and non-arable mountain zone (up to 3000 mm). Albania is generally rich in water resources, with annual total run-off of 25.7 billion m$^3$. Agriculture is the mainstay of country’s economy, which accounts for around 50 percent of the GDP and 60 percent of the total employment. Irrigation is of vital importance to agriculture, especially for growing summer crops such as vegetables, potatoes, maize and watermelons. Total irrigated area of the country is estimated at 432,000 ha. Almost all irrigated area depends on surface water supplies, with groundwater covering only 1000 ha in irrigation command. There are 653 dams and reservoirs supplying water to about 184,000 ha and 639 pumping stations (with 1250 electrical pumps) providing lift irrigation from rivers and lakes for about 78,000 ha. However, most of the pumping stations are not functional. Around 55 percent of total irrigated area comprise of small systems covering less than 5000 ha. After the change in socialist regime in 1991, agrarian structure in the country was fundamentally changed from centralized and collective farming to decentralized and private farming through creation of 400,000 small private farms with an average land size of 1.4 ha. These agrarian changes followed major reforms in irrigation and drainage management in the country.

Participatory Irrigation Management (PIM) Reforms – Development of WUAs

Participatory irrigation management reforms were initiated by the Albanian Government, with assistance from the World Bank, soon after the change in socialist regime and privatization of agricultural land. So far, three major projects have been implemented in the country: (1) Irrigation Rehabilitation Project (1994 – 1999) implemented in 7 districts - covering rehabilitation of 70,000 ha of irrigation and 100,000 ha of drainage and establishment of more than 200 WUAs and 2 Federations of WUAs (FWUAs), (2) Irrigation and Drainage Rehabilitation Project (1999 – 2004 ) implemented in 14 districts – covering rehabilitation of 50,000 ha of irrigation and drainage and establishment of 170 WUAs, and (3) Water Resources Management Project (2004 –2009) being implemented in 15 districts – covering rehabilitation of 50,000 ha of irrigation and 30,000 ha of drainage and establishment of WUAs and FWUAs (all over the country). These projects aimed to improve irrigation infrastructure and promote institutional reforms in irrigation and drainage sector for increasing productivity, equity in water distribution and sustainability of systems. For these projects implementation is carried out, a project management unit created under the Ministry of Agriculture, Food and Consumer Protection.

The legal basis for establishing WUAs was provided through 1994 Law on Irrigation and Drainage, which was subsequently replaced by new Laws in 1996 and again in 1999. Initially, only the O&M responsibilities of secondary canals were transferred to WUAs, with responsibilities for primary canals and irrigation reservoirs remaining with the state-owned Water Enterprises. However, subsequently the O&M responsibilities of the primary irrigation facilities were also transferred to users through establishing FWUAs, and the Water Enterprises were restructured into Drainage Boards whose functions are confined to drainage management and river and flood protection. The Law permits the formation of F/WUAs, and indicates where they should be registered and the overall process for transfer of irrigation management responsibility for irrigation. While the system rehabilitation was a pre-requisite for formation of WUAs under 1994 law, but under the 1999 law the prior formation of WUAs and management transfer is one of the new pre-conditions for rehabilitation under the demand driven approach adopted in the second project. Under the Law, WUAs are private and non-profit associations established on hydraulic units (either small independent units or one or more secondary canals in a large system). On average, a WUA has 500 members and serves 642 ha. FWUAs operate head works and primary distribution of large schemes generally of 5000 ha (large systems may have more than one FWUAs). WUAs are governed by an administrative council (elected for a two year period at general meeting) and the chairperson appoints the executive council (which
comprises of a treasure, a secretary and water masters – who are generally salaried persons). FWUAs are generally structured in the same way, with WUAs as their members. FWUAs have their internal operational rules and regulations to help guide day-to-day activities. FWUAs have full and sole responsibility within their jurisdiction, and are authorized to set their own irrigation service charge/fee. However, irrigation cost recovery is a major problem in the country. Under the 1999 Law, the Ministry of Agriculture is the regulatory and supervisory body for FWUAs, with a special department established in the Ministry that carries out (a) physical and financial audit of WUAs; and (b) analyses and solves conflicts between the parties. During 2006, the audit group has audited 185 WUAs and FWUAs. There is a special WUAs unit at PMU that effectively implements WUAs support program.

So far, 489 WUAs have been established covering an area of 280,000 ha, of which 316 (or 64.6 percent) are fully functional. In addition, 22 FWUAs have been established, of which 9 are functional and 7 have turned into large WUAs. A national union of FWUAs has also been established which represents them at various institutional levels to address their problems and issues. The Albanian country paper suggests that the rehabilitation and development of FWUAs has led to a number of benefits including improvements in system O&M and equity in water rights/access, changes in cropping patterns towards high value crops and increases in crop areas, production and farm incomes. Also, WUAs had led to reduction in water related conflicts among farmers and strengthening of women role and participation in irrigation management (10 percent of executive and administrative counsels of WUAs are now women). Overall, there is a general perception among farmers and other stakeholders that WUAs manage irrigation systems better than Water Enterprises.

**Key Points**

1. Irrigation is critical to Albanian agriculture, and agriculture sector is important to Albanian economy as it makes significant contribution to national income and employment. Given the high dependence of rural households on irrigated agriculture for their livelihoods, and with realization of socio-economic benefits from irrigation reforms, there is a wider acceptance of PIM/WUAs reforms in the country.

2. Albania has gained considerable experience with PIM/WUAs reforms over the past 13 years. The country has adopted phase-wise or gradual approach to reform implementation (i.e. in terms of geographical coverage, development of legal framework, transfer of system management, institutional development of WUAs and their higher level representation). The setting of milestones and achievements made thereof during the reform implementation process include the following:
   a. Overtime revisions and strengthening of law on irrigation and drainage,
   b. transfer of tertiary level irrigation infrastructure,
   c. transfer of management at secondary and primary level of irrigation systems,
   d. full transfer of main functions, responsibilities and authorities including authority to set and collect irrigation charges/fee,
   e. establishment of hydraulic system-based WUAs (from village-based WUAs),
   f. higher level representation of WUAs through establishment of FWUAs and formation of national level union of FWUAs,
   g. adoption of demand driven approach to rehabilitation and institutional reforms (i.e. establishment of FWUAs prior to rehabilitation and not the other way round),
   h. restructuring of Water Enterprises into Drainage Boards,
   i. establishment of regulatory and supervisory body/unit for FWUAs to undertake physical and financial audits and resolve conflicts among FWUAs, and
   j. establishment of support program for promoting FWUAs and the role of women in irrigation management.

3. The main challenges facing FWUAs reforms in the country include: concerns over possible discontinuation of support program for FWUAs after close of the third project, concerns over lack of strategy for their long term sustainability, and the issue of low irrigation charging, poor collection rates and overall low cost recovery.
Bosnia & Herzegovina

Background

The territory of Bosnia & Herzegovina (B&H) is spreaded over an area of 51,129 km\(^2\) and has population of 3.85 million people. Administratively, by the Dayton Peace Agreement, Bosnia & Herzegovina has been divided into two entities – Federation of Bosnia & Herzegovina (FB&H) and the Republika Srpska (RS). Large part of the territory is hilly and mountainous, with only 5 percent of total surface area as flat land. Total arable land is estimated at 1.123 million ha, and 44 percent of all households in the territory are engaged in farming. More than half of agricultural land is sown with grains (wheat, barley, maize and other grains). Average landholding size is below 2 ha. Agriculture sector contributes 6.46 percent to B&H GDP (which is down from 9.2 percent in 1999). There is no ministry of agriculture in the state, and water management is carried out by regional entities. The B&H territory is divided into two water areas: Sava water basin (around 75 percent of the territory) and Adriatic Sea water basin (around 25 percent of the territory). The territory is relatively rich in water resources. There is a potential for irrigation of 155,000 ha or 13.8 percent of arable land, however, only 4630 or 0.41 percent of total arable land is presently irrigated. Irrigation systems are of generally small size, with most of them being dysfunctional and seriously damaged due to poor maintenance and war activities. In addition to formal irrigation systems, there are informal local systems where water is supplied from wells or open streams through portable pumps.

Participatory Irrigation Management (PIM) Reforms – Development of WUAs

The participatory irrigation management (PIM)/WUAs reforms in B&H and RS were mostly initiated in 2004 through two donor funded projects (including that by the World Bank), namely, Small Commercial Agricultural Development Project and Irrigation Re-vitalization Project in Popovo Polje. The projects involved rehabilitation and improvement of irrigation systems and development of sustainable institutional framework for irrigation sector based on establishment of F/WUAs. So far, 40 WUAs (26 in B&H and 13 in RS) and 2 FWUAs (1 in B&H and 1 in RS) have been formed, covering a total area of 5700 ha, which are at initial stages of their development, with many internal problems and unresolved issues in their environment. These were formed on the basis of the Law on Associations and Foundations 2001.

The establishment of WUAs involved creation of initiative boards for convening founding assemblies which elected WUAs presidents, their board of directors, reconciliation councils, secretaries and treasurers. The rule books on operation of bodies and irrigation systems were prepared and the WUAs registered and various training programs conducted. Seminars, workshops and study tours to visit WUAs in other countries have been helpful in promoting WUAs in B&H. The main features of WUAs model adopted in B&H are: transfer of part of irrigation infrastructure, right to a specific quantity of water for irrigation, sovereignty in managing and distributing water on the territory of the WUA, as well as collection of fee for the services provided in securing and distributing water to users, and operation and maintenance of the transferred infrastructure. Under the rehabilitation project, a condition for use of the funds is having a functioning WUA in accordance with the statute, the number of its members and its participation in works through contribution of 30-50 percent of the funds invested by the project.

In early 2007, FWUAs were formed where WUAs have each selected their representatives in the FWUA assembly, and the assembly adopted the statute of the Federation. The FWUA is responsible to take care of an irrigation system including its technical and institutional aspects, to maintain contacts with the agency for the water basin, cantonal and municipal authorities, enable optimal watering to all associations and fair distribution of available water from the river to the primary channels, and to represent all WUAs at Cantonal, Federal or National levels.

While the earlier Law on Waters (1998) emphasized on state intervention in irrigation and did not allow formation of WUAs, however, new Law on Waters adopted in 2006 allows establishment of WUAs and the possibility of transferring the responsibility for irrigation onto the WUAs, including their obligation to obtain all necessary water permits and secure the funds for operation and maintenance of irrigation systems. However, the Law does not provide specifics of how the WUAs would get the rights to use and manage the water structures, and how would they secure financing for operation and maintenance of the system from their members or non-members – all this is left to F/WUAs to decide upon based on free will and individual interests, to adopt the rules that they would comply
with. The new Law is largely in line with the EU water-related legislation, particularly the Framework Directive on Waters in EU.

After revitalization of the system and establishment of WUAs, irrigated areas have expanded. Most of the WUAs have organized seasonal cleaning of parts of the system through their members, and with financial support provided by municipality. In some systems (Ljubuski), the project helped financing some small works and procurement of materials, and the WUAs showed their ability and self-reliance in making the concrete works in some priority sections of their channels thus contributing to improvement of the system, but also strengthening their internal organization. However, there is still a long way to achieving full system sustainability. In general, the WUAs are financially weak. Membership fee paid by the members is only symbolic in the amount, and no payment is yet made for the service of capturing and delivering water. There is a strong resistance among water users towards introduction of water fees. There is also resistance on the part of some officials and WUA members towards starting the process of transferring the structures for watering and operation and maintenance onto the WUAs. Non-compliance of rules by non-members, including refusal to pay irrigation fee, is yet another problem. There is a common perception among WUAs members that the WUAs legislation need to be changed and that the relevant laws and secondary legislation need to be adopted in order to improve conditions for development of WUAs and irrigation systems.

**Key Points**

1. Agriculture in B&H accounts for small share of GDP and employment. While, presently only 4630 ha or 0.41 percent of arable land is irrigated, there is a potential to expand irrigation to over 155,000 ha or 13.8 percent of arable land. Irrigation systems are of smaller size, and most of them are dysfunctional and need revitalization.

2. The PIM/WUAs reform in B&H is a relatively new phenomenon, and the state is in the process of experimenting and learning from these reforms. F/WUAs formed so far under the reform initiative are fairly young and at initial stages of their development, and they are faced with many internal problems and unresolved issues in their local environments. While the enabling environment for F/WUAs development is being created and improved, there is a need to continue support to F/WUAs for their further strengthening and sustainability.

**Croatia**

Agriculture in the Republic of Croatia is characterized by years-long decrease in production, unbalanced supply and demand, a permanent negative foreign trade balance, and a gradual decrease of its share in the GNP (from 11.58 percent in 1999 to 9.93 percent in 2003). In 2003, 74 percent of the total area of arable land and gardens (amounting to 1.080 million ha.) was sown, with grains accounting for 64.1 percent of the crop area sown. The dominant segment of agrarian structure in the Republic is agricultural family farms, which own about 80 percent of land. More than 70 percent of these farms have less than 3 hectares of mostly very fragmented agricultural plots.

Irrigated area in Croatia is very small – 9,264 ha or 0.86 percent of exploited agricultural land – in relation to the needs and large potential. It has been estimated that of a total of about 2.9 million ha of agricultural land, 244,000 ha is suitable for irrigation, and with minor limitations, irrigation can be performed on more than 500,000 hectares. Presently, less than 1 percent of renewable water resources is abstracted for all purposes in Croatia.

In Croatia, droughts occur on average every three to five years and, depending on their intensity and duration, they can decrease the crops of various types by 20-70 percent. Irrigation is one of the measures by which the damage from droughts can be decreased or completely avoided in certain areas. Reduction of crops of agricultural areas cultivated without irrigation in Croatia amounts to 10 – 60 percent in the average climatic conditions, and in drought conditions up to 90 percent of the biological potential, depending on the crop type, soil and area.

In 2004, the Government of Croatia launched a *National Project of Irrigation and Management of Agricultural Land and Water in Croatia* (NAPNAV). The project aims to systematically expand irrigation in the country by identifying priority areas and the types of systems to be developed. It is planned that by 2010, irrigation systems shall be constructed on new 35,000 ha of agricultural land, and by 2020, on a total surface of 65,000 ha. In view of
systematic expansion of irrigation, several regulations which would more thoroughly regulate the manner of using and operating irrigation systems, the manner of calculating and collecting prescribed charges, are now under preparation. The project is in the first stage of its realization, where emphasis is put on organizational and structural activities, i.e. on the preparation of plans and technical documents. The construction of several new irrigation systems is expected to start in the second stage of the project in 2008. It is expected that the measures of systematic organization of infrastructure in agriculture, consolidation of agricultural lands and introduction of irrigation and new technologies of production shall result in a more efficient agricultural production. While so far no PIM/WUAs reforms have been initiated in Croatia, however, there is a significant interest in such reforms and the pilot project on WUAs is now under preparation.

**Key Points**

1. Only a very small part of the substantial amount of available land and water resources are being presently used – with irrigated area accounting for less than 1 percent of total agricultural area and abstracted water (for all purposes) accounting for less than 1 percent of total renewable water resources in the country. Croatia is one of the last few countries in SEE region in terms of irrigation development. Plans are now underway for systematic development of irrigation in the country.

2. While so far there is no experience with PIM/WUAs reforms, the country is now preparing pilot project on WUAs, which will help in gaining experience and choosing the way forward.

**Serbia**

The Republic of Serbia has a population of about 10 million, of which 50 percent live in rural areas, and around 17 percent derive their livelihoods from agriculture and allied industries. Agriculture sector, including agro-processing, accounts for about 25 percent of the country’s GDP and 26 percent of its exports. Serbia has three major land forms – the plain areas in Vojvodina and the flood plains of the Danube, Sava and Drina rivers; the Morava valley in its main stream and two southern arms; and the mountainous areas which cover most of the central and southern parts of the country. There are huge inequities in land distribution across farming households and the average landholding size of around 3.6 ha. In the earlier period 118000 ha of irrigation was constructed in the country. Presently, irrigating farmers do not undergo the licensing process so there is no information and data about the exact amount of irrigation or the extent of irrigated area in the country. Historically, water cooperatives and water communities have been the main local level water management institutions, which are generally no longer active. The legislation from the former times, that has not yet been changed, allows registration of water cooperatives but does not recognize WUAs. It is now being strongly felt that the new law/legal framework that allows formation of WUAs is needed in the country. The World Bank has recently approved a ‘Water Resource Management Project’ for Serbia to fund (a) technical assistance for institutional changes, and (b) rehabilitation of essential infrastructure for flood control, drainage and irrigation. The project is expected to facilitate development of new legal framework and piloting of WUAs in the country.

**Overview of Presentation – by Mr. Usaid El-Hanblai – on World Bank Support to WUAs Development in ECA Region through Infrastructure Rehabilitation and Institutional Reform Projects**

Agriculture and irrigation in the former communist countries (in European and Central Asian Region - ECA) was characterized by central planning with state to state agreements. Under the communist regimes, agricultural regions were highly specialized, food prices at farm-gate were kept artificially low, and agricultural Commodities were highly subsidized. Farming systems were managed by communes, and there was no private ownership of land. Large-scale irrigation systems were built with little consideration to economics and environmental issues. Energy was almost free leading to over-pumping in many areas, and the operation and maintenance cost was provided by the state.

After the socialist era, the countries which inherited these systems have been facing enormous challenges during their transition phase. There is no more capital transfer from the USSR or the state, there is a problem of finance and the O&M budget is poor, and systems are deteriorating. There are serious questions as: which systems or parts of systems are still economically viable?, what is the suitable cropping pattern in those systems?, which systems should be abandoned and what would be their social and environmental cost?
The key strategic solutions to address these issues include: (1) abandoning the whole-scheme reconstruction, (2) starting with head works, pumping stations, main canals and some branch canals, (3) reducing rehabilitation cost per ha to minimum (US$100 in some cases), and (4) developing WUAs. Promoting development of WUAs has been essential part of the design of the World Bank projects in countries in the the ECA region (Albania, Armenia, Azerbaijan, Bosnia & Herzegovina, Georgia, Macedonia, Kazakhstan, Romania, Tajikistan, Uzbekistan, and Turkey).

The governments can no more afford subsidizing irrigation sector and WUAs, which offer a win-win situation, should be essential part of the institutional reform in our projects. WUAs reform is not hard as we thought it would be, but it requires different approach and timetable.

Note: overview of other presentations on international experiences and lessons on PIM/WUAs reforms is given in part two of this report.

Summary of the Workshop Discussions and Conclusions

While SEE countries of focus (Romania, Albania, Bosnia & Herzegovina, Croatia and Serbia) share common socio-political background, there is much variation among these countries with respect to their levels of socio-economic and agricultural development. For example, annual per capita GDP in Croatia is US$ 7724 while in case of Serbia it is US$ 1240. The share of agriculture in the GDP is 50 percent for Albania while it is 13 percent for Romania and just 6.5 percent for Bosnia & Herzegovina. Similarly, there are large differences among these countries with respect to their levels of irrigation /infrastructure development, size of irrigation systems and experiences with PIM/WUAs reforms. Irrigation in Romania and Albania has been developed on a considerable part of their agricultural lands, although most systems in these countries need rehabilitation and improvements. Bosnia & Herzegovina has very small irrigated area and most of the existing systems in the state are dysfunctional and need to be re-vitalized. Croatia and Serbia are only at the beginning of irrigation development, with presently only very small proportion of the area irrigated.

Similar is the case for PIM/WUAs reforms in these countries. Among the SEE countries of focus, Albania has gained considerable experience with WUAs reforms over the past 13 years. The country has adopted phased or gradual approach to reform implementation (in terms of geographical coverage, development of legal framework, transfer of system management, institutional development of WUAs and their higher level representation). While there are several reform related issues that need to be resolved – including the key issue of irrigation charging and low cost recovery – the country offers significant experience and important lessons on reforms that may be useful for other countries in the SEE and other regions. In Romania, the WUAs reform initiative is fairly recent and the country is just in the process of learning from its initial reform experiments and is only at the beginning of expanding the reforms at wider scale. Unlike in other countries, Romanian irrigation systems are generally larger in size and are characterized by higher elevation (generally with three terraces) – where electricity consumption for lifting water is high resulting in high cost irrigation. Consequently, many of such systems are deemed to be economically unviable. While abandoning such systems, as is often suggested, may be an option, however, the social and environmental cost of such action may be enormous. These systems pose great challenge for developing and sustaining WUAs and making them financially self-sustaining (especially when subsidies are removed). In Bosnia & Herzegovina, the PIM reform initiative is fairly new, and the country is in the process of creating enabling environment for reforms and pilot testing WUAs. On the other hand, Croatia and Serbia are yet to initiate WUAs reforms. Both countries are now preparing pilot projects on WUAs. A comparative summary of key indicators, experiences with WUAs and key issues thereof across SEE countries of focus is provided in Table 1.
**Table 1: Comparative Summary of Key Country Indicators and Experiences with WUAs**

<table>
<thead>
<tr>
<th>Item/Indicator</th>
<th>Romania</th>
<th>Albania</th>
<th>Bosnia &amp; Herzegovina</th>
<th>Croatia</th>
<th>Serbia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population (million)</td>
<td>22.4</td>
<td>3.5</td>
<td>3.9</td>
<td>4.7</td>
<td>10</td>
</tr>
<tr>
<td>GDP Per Capita (US$/year)</td>
<td>3374</td>
<td>2439</td>
<td>2183</td>
<td>7724</td>
<td>1240</td>
</tr>
<tr>
<td>Average Annual Precipitation (mm)</td>
<td>701</td>
<td>1485</td>
<td>1250</td>
<td>1089</td>
<td>734</td>
</tr>
<tr>
<td>Total Agricultural Area</td>
<td>14850</td>
<td>2900</td>
<td>1250</td>
<td>9.2</td>
<td>118 +</td>
</tr>
<tr>
<td>Contribution of Agriculture to GDP (%)</td>
<td>13</td>
<td>50</td>
<td>9.9</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Average landholding size (ha/household)</td>
<td>2.5</td>
<td>1.4</td>
<td>2</td>
<td>3.6</td>
<td></td>
</tr>
<tr>
<td>Total Irrigated Area (000ha)</td>
<td>3100</td>
<td>432</td>
<td>4.6 (potential 155 ha)</td>
<td>9.2</td>
<td>118 +</td>
</tr>
<tr>
<td>Size of Irrigation Systems</td>
<td>Medium, large</td>
<td>Medium, small</td>
<td>Small</td>
<td>Small, medium</td>
<td>Small, medium</td>
</tr>
<tr>
<td>Experience with WUAs</td>
<td>• WUAs reform began in establishment of 4 pilot WUAs in 2000.</td>
<td>• WUAs reforms began in 1994.</td>
<td>• WUAs reforms began in 2004.</td>
<td></td>
<td>• So far, no experience with PIM/WUAs reforms, the country is now preparing projects for constructing new systems, rehabilitating existing ones and pilot testing WUAs; new law, that allows establishment of WUAs, is being awaited.</td>
</tr>
</tbody>
</table>

- A new legal framework and related enabling instruments have been established (2004/05) for developing WUAs in the country.
- So far, 248 WUAs covering an area of 634000 ha have been established, mostly during 2005-07. Of these, 69 percent are commercial WUAs with commercial companies as their members and these are more active than non-commercial WUAs with individual/small users as members.
- The reform initiative in the country is fairly new; outcomes are mixed; there is a need to further support and strengthen WUAs.
- New legal frameworks and related enabling instruments have been developed, revised and strengthened for developing and sustaining WUAs (1999).
- So far, 489 WUAs covering an area of 280,000 ha have been established, of these 316 are fully functional; 22 FWUAs and a national union of F/WUAs have also been established.
- W/FUAs reforms have generated significant benefits in terms of improving system O&M, quality of service delivery, improvements in water distribution equity, crop productivity, and farm incomes.
- The country has followed a phased or gradual approach to reforms, and have
- WUAs reforms have generated significant benefits in terms of improving system O&M, quality of service delivery, improvements in water distribution equity, crop productivity, and farm incomes.
- The country has followed a phased or gradual approach to reforms, and have
- So far, 40 WUAs and 2 FWUAs covering an area of 5700 ha have been established under the old law; new law on WUAs was adopted in 2006.
- While revitalization of systems and establishment of WUAs have led to improvements in systems, the overall outcomes are mixed; WUAs are financially week and there is issue of poor cost recovery; WUAs are fairly young and
- So far, no experience with PIM/WUAs reforms, the country is now preparing pilot project on WUAs, which will help in gaining experiences and lessons with reforms; much focus is on fulling new irrigation systems.
<table>
<thead>
<tr>
<th>Key Issues</th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>• Many of the large scale systems are economically unviable, and there is difficulty in organizing WUAs on such systems,</td>
<td>• The main issues facing F/WUAs reforms in the country are low irrigation charging, poor collection rates and overall low cost recovery; concerns over possible dis-continuation of support program for F/WUAs after close of the on-going project, concerns over lack of long term strategy for their sustainability.</td>
<td>• Most irrigation systems are in bad condition and need revitalization; there is a need and scope to expand irrigated areas over 155,000 ha;</td>
<td>• Croatia is at the beginning stage of irrigation development; plans are now underway for systematic development of irrigation systems and pilot testing of WUAs;</td>
</tr>
<tr>
<td>• There are concerns over: phasing out of irrigation subsidies, increasing irrigation charges/fee and recovering full O&amp;M cost, resistance from the irrigation agency for handing over of the infrastructure to WUOs and increasing cost of much needed rehabilitation of deteriorating irrigation infrastructure.</td>
<td>• Continuous support and capacity building is needed for strengthening and sustaining WUAs.</td>
<td>• There is a common perception that WUAs laws need to be revised and strengthened;</td>
<td>• There is weak knowledge base on irrigation; huge inequities in land distribution; plans are now underway for systematic development of irrigation systems and pilot testing of WUAs;</td>
</tr>
</tbody>
</table>

Sources: rows xxx from sources xxxx
The workshop discussions and deliberations point to the following key conclusions:

1. **There is a significant interest among stakeholders in promoting PIM/WUAs reforms in the region**: while countries in the region are at various stages of implementing PIM reforms and WUAs development and with varying degree of outcomes and impacts, such reforms are perceived to be beneficial and much needed, and there is a significant interest in promoting them.

2. **Understanding local conditions and adopting flexible approach to WUAs development is a key to effective implementation of PIM reforms**: while, broadly speaking, the countries of focus in the SEE region have followed similar approach in implementing PIM reforms and the development of WUAs, there are significant differences in local conditions and understanding the local conditions is important for effectively implementing reforms. These include, for example, size, type and complexity of irrigation systems, climatic conditions and availability of water resources, productivity and profitability of agriculture, size and distribution of land holdings, poverty situation, degree of socio-economic homogeneity, and power relations in local communities. There is no single model or framework that suits all situations, each model has its own advantages and limitations. WUAs have to be country and locale specific – according to local conditions.

3. **Understanding and accounting for the contribution (and value) of irrigation to agriculture and the role of agriculture in livelihoods of people in local settings** — in designing PIM reform projects: farmers would be interested in PIM reforms and WUAs development where irrigation is critical to agriculture, it generates significant benefits, and farmers derive significant part of their livelihoods from agricultural activities. Where irrigation is not viable or tiny in farm incomes, farmers may not be interested in WUAs reforms. Understanding these factors is important for focusing initial reform efforts in areas where there is a greater dependence of farmers, on irrigation and agriculture, for their livelihoods.

4. **Integrating irrigation sector investments with other related agricultural interventions for enhancing benefits of irrigation**: irrigation generates larger benefits when combined with other factors – particularly, cultivation of high value crops, new production technology, improved information and extension, and input and output markets. Such an approach provides incentives to farmers and enhances their interests in WUAs and PIM reforms. Linking the WUAs with private sector can be helpful in this regard. In some situations, multi-functional WUAs may also be an answer. However, it is also sometimes suggested that at the initial stages the focus may be on developing and strengthening single-functional WUAs, that at later stages may diversify their operations and evolve into multi-functional entities.

5. **Continuing support and strengthening of WUAs for their sustainability**: PIM/WUAs reforms is a fairly new phenomenon in the region, and the countries are in the process of experimenting and learning from the initiative. Their continuing support – through capacity building, fostering agency relations with WUAs, promoting WUAs linkages with private sector, monitoring and evaluating WUAs activities for identifying and addressing any constraints facing them) – is important not only to address the issues they are presently facing but also to prepare them for dealing with the future ‘second generation’ issues.

6. **Promoting cross-country and cross-regional sharing of experiences and lessons**: the workshop participants emphasized on promoting cross-country and cross-regional sharing of experiences and lessons on PIM reforms – through regional and international cooperation. The participants acknowledged that INPIM’s national and international seminars on PIM and other similar national, regional and international events have made a great deal of contributions in promoting PIM reforms in the region. The various options discussed for promoting regional and international cooperation on PIM reforms included: establishing a regional forum on PIM, establishing INPIM’s regional chapter on PIM, using existing organizations (such as river basin organizations) as platforms for promoting PIM and holding annual regional workshops or meetings (like the present one). Further, it was suggested that such initiatives could be supported through World Bank projects in the region.

7. **Initiating a multi-country study on PIM/WUAs reforms in the region**: while the country papers presented at the workshop provide a great deal of information and knowledge about WUAs reforms in the respective
countries, there is a need for a formal regional study on assessing the progress, performance and impacts of F/WUAs and identifying opportunities and constraints to WUAs development in the region. Such a study would be helpful not only for developing a long term strategy for strengthening and sustaining already established WUAs but would also help guide for effectively promoting WUAs reforms in areas and countries where the reforms are yet to be implemented.

Vote of Thanks by Usaid El-Hanbali, Gabriel Ionita and Intizar Hussain

The regional workshop on ‘Development of Water Users’ Associations in Southeastern European Countries’ was held through collaboration and partnerships of many institutions and individuals who contributed directly or indirectly to its successful preparation, organization and conduct. We would like to acknowledge the financial support from the Bank Netherlands Water Partnership Program and the organizational support from the Ministry of Agriculture and Rural Development of Romania, World Bank and its Romania office, World Bank Institute (WBI) and the International Network on Participatory Irrigation Management (INPIM). We are thankful to Mr. Dacian Cioloş, Under-Secretary of the State, Ministry of Agriculture and Rural Development of Romania, for his participation and support to the Workshop. We are grateful to the country paper contributors, presenters, participants and representatives of relevant ministries, project management units (PMUs) and F/WUAs (from Romania, Albania, Bosnia & Herzegovia, Croatia and Serbia). Special thanks to Dr. Mei Xie from WBI for her valuable contributions to the workshop and Dr. Salah Darghouth, Senior Water Advisor of the World Bank and the Chairperson of INPIM, for his kind support to the event. We greatly appreciate and commend the support given by Ms. Ana Maria Ihora and Ms. Anna O'Donnell for coordination and organization of the workshop. We are very thankful to the translators (Critian Racareanu, Corina Anghel, Dorina Ermurache, Ledia Musat, Elda Mustaka, Octavia Nedelcu and Clara Capatana from DIACRIS International) who very ably carried out multi-lingual translations during the course of the workshop. We are also thankful to WUAs and farmers in Sadova-Corabia irrigation scheme for their kind hospitality during the field visit.

Organization of the Report

This publication is divided into four parts. With overview presented in this part, the second part provides international experiences with participatory irrigation management reforms with key lessons, messages and country case studies. The third part presents country papers from Romania, Albania, Bosnia & Herzegovina and Croatia. The fourth part contains country papers from Romania, Albania, Bosnia & Herzegovina and Croatia in respective country languages. The appendix provides the workshop schedule, the list of participants and sample laws/ by-laws on WUAs from Albania and Romania.
Part II

Lessons from International Experiences
On PIM Reforms
Participatory Irrigation Management Reforms: Lessons and Messages from Global Experiences

Intizar Hussain

This paper provides a synthesis of key lessons, messages and examples of better practices in participatory irrigation management (PIM) reforms from over 125 papers presented at the Ninth and Tenth International Seminars of the International Networks on Participatory Irrigation Management (INPIM) held on December 4-8, 2006 in Lahore and May 2-5, 2007 in Tehran, respectively. The papers cover a fairly wide range of countries and regions where PIM reforms are being implemented. These included papers from India, Pakistan, Nepal, Sri Lanka, China, Taiwan, Indonesia, Philippines, Japan, Iran, Turkey, Uzbekistan, Tajikistan, Kyrgyzstan, Russia, Morocco, Senegal, Yemen, Burkina Faso, Kenya, Mexico and Australia, and other papers documenting studies at the international, regional and sub-regional levels. The papers cover a wide variety of hydrological and agricultural environments and irrigation systems including small, medium and large systems, old and modern systems, water short and water adequate systems, systems with good and poor performance, and systems with short and long history of PIM reform experiences. Similarly, the papers cover various aspects and dimensions of PIM reforms and document successful and not so successful cases, conditions and factors influencing success of PIM reforms, examples of better and innovative ideas and practices, and challenges and opportunities for promoting PIM reforms. The experiences, findings and conclusions documented in these papers are synthesized into the following 12 key lessons and messages.

1. Irrigation plays an important role in enhancing productivity, employment, farm incomes and food security – promoting agricultural and economic growth and reducing poverty. The positive impacts of irrigation can be substantially increased through interventions that address issues related to inequities in land and water distribution, water allocation within and across sectors, maintenance and management of irrigation infrastructure, access to improved production technologies and agricultural support measures – all with greater emphasis on pro-poor approach to such interventions.

The key message is that irrigation offers significant opportunities for improving productivity, growth, incomes and poverty reduction, under appropriate conditions.

2. There are enormous challenges and complex set of issues facing irrigation sector – from basin level to watercourse and field levels – but so are the opportunities. The major problem facing the irrigation sector include: vicious circle of inadequate operation and maintenance, poor service delivery, infrastructure deterioration, low cost recovery, inefficient water use with lower than potential productivity levels, unsustainable public subsidies, and growing concerns over environmental problems. The sector has not received the much needed attention over the past decade. There is a need for re-engaging in the sector through increased investments from both public and private sources not only for expanding irrigation, where needed, but also for reforming and modernizing existing irrigation systems for improved service delivery – with focus on right kind of investments with sound institutions that deliver larger benefits to the poor.

3. Over the past two decades, the governments in most developing counties have initiated institutional reforms in irrigation. The reforms aim at achieving a number of objectives including: reducing cost to the governments, improving water use, productivity, profitability of farming, and overall performance of irrigation systems, and, importantly, relating irrigation management more adequately to actual needs of water users. The reforms have focused on formulating water/irrigation policies, developing legal and regulatory frameworks, changing irrigation financing/charging mechanisms, and promoting PIM reforms through re-structuring of public irrigation agencies and establishing new institutions such as WUAs. The participatory approach to irrigation management is now widely recognized by governments, donors, agencies and other stakeholders. While PIM as a concept and approach has been in vogue for over two decades with varying degrees of successes, the fascinating and challenging debates on emerging PIM issues continue. As irrigation reforms progress, issues continue to emerge, alternative PIM models

1 Executive Director, International Network on Participatory Irrigation Management (INPIM).
Email: ihussain@inpim.org
and frameworks continue to be experimented in diverse local environments, and PIM approaches continue to be evolved and refined. Importantly, as water becomes scarce and faces intense sectoral competition in most settings in the world, there is an increasing need to better use and manage each single drop of water. And the PIM approach to irrigation management assumes greater than ever significance in such settings. In view of this, more than 60 countries have embarked upon PIM reforms aimed at improving irrigation management and making irrigation systems sustainable. These countries represent some 80 percent of global irrigated area. PIM is now a widely accepted approach and its implementation is a worldwide phenomenon; there is a general consensus on the need for further promoting, strengthening and expanding PIM reforms in irrigation sector across countries; and in many countries PIM is becoming a central component of irrigation/water policies.

4. The PIM reforms deliver a number of positive outcomes and impacts for stakeholders, including the following: (a) empowering farmers, (b) improving system maintenance and service delivery, (c) reducing cost of irrigation to the government, (d) improving productivity and profitability of agriculture and water use, and (e) leading to innovations in irrigation management and irrigated agriculture in general. However, the magnitude of such outcomes and impacts and the degree of PIM reforms success and sustainability have varied significantly across settings. Further, equity in sharing of PIM benefits and sustainability of these benefits has been major concern.

5. PIM reforms continue to face a number of issues – influencing their progress and performance, and impacts – which include the following:

- Partiality in implementation of PIM reforms and establishment of new institutions – so far, reforms in most countries have been implemented only partially in terms of geographic coverage, organizational structures and linkages and transfer of functions; legal frameworks and needed support to WUAs is often weak and unclear; and overall progress is only moderate;

- Resistance from irrigation agencies – irrigation agencies often tend to resist PIM reforms, perceiving threat to staff jobs, budget or independence. There are often ambiguities, on the part of agencies and WUAs, regarding the division of responsibilities, cost sharing and rights to water and infrastructure. In most cases, there is lack of clear strategy on re-structuring of agencies.

- Issue of sustainability of newly created institutions - much of the past focus in PIM reforms implementation has been on the hardware side of irrigation systems; in most cases incentives to WUAs through O&M grants, capacity building and other related support have been of short term nature;

- Concerns about over-empowerment and dominance of local influential people – particularly in settings with high inequities in land distribution. In such settings, there are concerns over exclusion of small farmers from management decisions and dominance of local influential people; there are also issues related to women participation in irrigation management;

- Issue of irrigation charging and poor recovery of O&M cost – often there is a lack of well-designed irrigation charging systems, resulting in low level of cost recovery and poor financial status of WUAs.

6. There are certain factors or conditions that determine success and sustainability of PIM reforms. These relate to physical/hydrological, socio-economic, agricultural, financial and institutional conditions in local settings. Most important of the facilitating factors and conditions include the following:

1. Institutional framework – there is a legislative backing, WUAs have clear and strong legal status,
2. Representation and partnership – there are supportive links, effective partnerships and interactions with relevant government agencies, NGOs and private sector organizations,
3. Political Support – there is a strong political will, commitment & support,
4. Leadership – there is a strong multiple local leadership,
5. Financial strength – adequacy of resources and healthy financial status of WUAs,
6. Capacity building and support – long term capacity building, support services,
7. Water and land rights – clear water use rights, land tenure security,
8. **Authority and powers** – full management authority and power transfer to WUAs,
9. **Effective system of accountability, transparency, incentives, and conflict resolution** in place,
10. **Homogeneity of community** – there is a homogeneity of community in terms of caste, incomes, and resources, 
11. **Dependence on irrigation and agriculture and level of agricultural profitability** – there is a higher degree of dependence on irrigated agriculture for livelihoods, and agricultural productivity level is high,
12. **Cost and benefits to farmers** – cost to farmers is small proportion of the benefits,
13. **Condition of irrigation infrastructure** – infrastructure physically sound and well-functioning irrigation system, better control over irrigation supplies

As demonstrated by success stories from countries such as China, the development of effective WUAs is based on five fundamental principals – that the WUAs must be viewed by farmers as their own organization, use hydraulic boundary, measure water at intake, collect irrigation fee from members and pay directly to supplier based on volume of water received, and must have reliable water supply and distribution. Further, WUAs posses four important features – (i) they vary water fee from year to year (voted by general assembly), depending on ‘needs’, ‘expenditures’ and ‘income’ of a WUA, (ii) charge upstream and downstream farmers differently, with higher charges for upstream users in time of water shortage, (iii) undertake other businesses to compensate WUA’s income approved by assembly, and (iv) they are transparent and follow a ‘three open’ policy – ‘water price’, ‘irrigated area’, and ‘actual volume of water’

*Understanding and accounting for these and other related facilitating or constraining factors into the design PIM reform projects is important for effectively promoting, strengthening and sustaining PIM reforms.*

7. There is a need and scope for broadening the framework of PIM from simple ‘transfer’ to an instrument of ‘restructuring’ the water sector for improving its performance, ensuring equitable water access and allowing transition to a sustainable and integrated management and use of water resources. It is now being increasingly suggested that **PIM approach can provide an important mechanism and venue for tackling water resources management issues.**

8. PIM reforms lead to innovations in irrigation management and irrigated agriculture. Following are some of the examples of these innovations and better practices.

(i) Innovations under PIM reforms in Maharashtra:

– **Innovations by Ozar WUAs**

  *the Ozar WUAs were formed in 1991 in Ozar village, 16 km north of Nashik town and 150 km from Mumbai in Nashik district of Maharashtra. The village lies in extreme tail part of the right bank canal of Waghad dam command area. The operational area of the three Ozar WUAs studied is 1300 ha. The major initiative in setting up Ozar WUAs was taken by a local NGO (Samaj Parivartan Kendra). Following are two of the important innovations made by Ozar WUAs.*

  – **The co-management of surface water and groundwater by Ozar WUAs.** After improving the necessary infrastructure (check dams) – that helped in harvesting rainwater, reducing losses, increasing water storage and recharging of groundwater – the WUAs started a system of alternative canal/groundwater. With increased quantity and reliability of water, the farmers switched to high value crops such as vegetables. The WUAs keep detailed records of each well and its recharge, and they charge from the well owners for this service. This charge is around half of the charges for canal water. In this way, the Ozar

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2 Based on Xie, Mei (2007), Development of Farmer Water Users Associations – cases from East and South Asia, presentation made at Regional Workshop on WUAs Development in Southeastern Region, June 5-7, 2007, Bucharest, Romania.

WUAs are successfully practicing conjunctive management of surface and groundwater resources.

– **Volumetric supply and charging of water on hourly basis** by Ozar WUAs. WUAs pay the government on the basis of metered quantity of water they receive. For distribution among members, they switched from a crop and area based water distribution to time/hourly-based distribution by estimating area irrigated and the potential losses. Water charge is estimated based on number of hours a farmer receive water. This new system of water distribution and charging has led to improvements in efficiency of water use.

Seeing the success and innovations of Ozar WUAs, farmers in the entire command area of the project have formed WUAs, and they have federated into a federal society – which is the first case of project level transfer in India.

– A pilot project is being implemented in three tehsils of Maharashtra (Atpadi, Tasgaon and Sangola) to promote equitable distribution of water among households in villages – through water allocation based on population rather than the command area. An NGO is involved in negotiations and agreements on mechanisms for promoting equitable distribution of water. As per agreement, water would be allocated to each village on the basis of population (but within the quota allocated to each tehsil). All families in a village can become members of WUAs – thus shifting membership criteria from ownership of land to residence in a village. This has important implications for promoting equity in access to water, and also for widening the scope of PIM reforms.

– The new PIM Act – Maharashtra Management of Irrigation Systems by Farmers Act 2005 – has various innovative provisions. These include for example, supplying water to WUAs only (for providing incentives to farmers for establishing WUAs), supplying water to WUAs on volumetric basis, ensuring representation at WUAs management committees from all parts of systems including tail ends and women members, and ensuring membership of all landholders and leaseholders.

– Establishment of district level federation of WUAs in Katepurna project in Maharashtra – to represent, and address, issues of WUAs at various platforms. Similarly, an ecotourism center has been set up at the project site for entertainment and education about water resources.

(ii) Equitable land and water distribution for poverty alleviation by WUAs in Andhi Khola project in Nepal: Andhi Khola water user association has been successful in promoting equity in land and water distribution. The WUAs purchased land from those having relatively larger holdings, and distributed to the poor landless and marginal farmers (at pre-irrigation price, with interest free payments to be made in five years period). The WUA has also initiated a system of ‘water shares’ where any person residing in the project area could earn a share by contributing 5 days of labor. A person could earn a maximum of 4 shares, and each share entitles an owner a certain quantity of water (calculated based on total of 25000 shares). Members pay irrigation service fee to WUAs based on the water shares they own.

(iii) In order to raise local level irrigation management issues at higher levels and to protect rights of local people, WUAs’ higher level unions or federations can play an important role. National level federation of water users associations in Nepal is good example of this initiative.

(iv) System of incentives by WUAs to improve irrigation management and irrigation service fee/cost recovery:

- **Incentives and rewards to irrigation managers in China**: irrigation management reform in Henan and Ninxia provinces has created a new system of fees, payments and charges that embody the primary incentives for the managers to save water. Water fees collected from farmers include two parts: **basic water fees associated with the fixed quantity of land in the village and volumetric water fees associated**
with the volume of water use. Set by water bureau officials, a farmer is required to pay the basic water fee (which is based on his landholdings) and part of the basic water fee belongs to the water manager after it is collected. This part of the manager’s compensation is paid to him as a fixed payment. In implementing water management reforms, Irrigation District (ID) officials agree that the water manager has only to pay the per cubic meter charge for the water that is actually used (actual quantity). If the actual quantity of water delivered to the village (at the request of the water manager) is less than the targeted quantity, the difference between the volumetric fee that is collected from the farmers and that which he pays for the water is his excess profit. The excess profit is an amount that is earned by the manager beyond the fixed payment, which provides him an incentive to improve local level management.

- Financial incentives by WUAs to improve cost recovery:
  
  o In Turkey, WUAs (independently) determine their level and structure of irrigation service fee that includes a system of incentives for their members. Most of the WUAs have introduced a system of advance payments, with financial (dis)incentives built into payment structure. There is a flexibility to pay in advance, during or after the season and in lump sum or in installments – each with different set of (dis)-incentives. For example, Uzum Water Users Association (UWUA), established in 1995 in Alasehir District of the Izmir province, determines its fee based on assessment of the maintenance expenditure and a part of capital cost (which goes to DSI). Farmers who produce grapes as wet crop pay more than the farmers who produce grapes as dry crop, due to more water requirements of the former. Annual irrigation fee in 2005 was $50/ha (as compared to $40/ha in 2004). Farmers have to pay 50 percent of the total irrigation fee in advance while the remaining 50 percent can be paid during middle of the season. There are late fee payment charges or penalties i.e. about 10-15 percent. Collection rate is about 95 percent. Similarly, Menemen Left Bank Water Users Association (MLBWUA), established in 1995 in Menemen District of the Izmir province, determines its irrigation fee based on the assessment of the maintenance expenditure and the water demand and supply condition. The WUA charges higher irrigation fee for the crops which require more water in the season when water supplies are short. Annual irrigation fee in 2005 was $88.89/ha (as compared to $74.07/ha in 2004). Farmers have to pay 25 percent of the total irrigation fee in advance while the remaining can be paid during middle of the season or after the harvest of the crop. Users paying full irrigation fee in advance enjoy certain discounts. Collection rate is over 95 percent.
  
  o In Qazvin Irrigation and Drainage Network (QIDN), located about 100 kilometers in north west of Tehran, Iran, WUAs have introduced a system of advance payment. In 2006, irrigation service fee is set at Tuman 5/m³ (i.e. about $ cents 5/m³). There is a computerized system of irrigation service fee billing and water delivery records. Water is delivered to farmers only after payment of irrigation fee is made in advance. Water is measured at the head of secondary and tertiary outlets. Mirab (water master) collects and deposits the monthly water requirements and irrigation service fee on behalf of farmers. This system ensures 100 percent recovery of irrigation fee.
  
  o In the Philippines, irrigation associations (IAs) are given financial incentives to improve charge collection. IAs receive only 2 percent if collection is 50 percent of invoice, receive 15 percent if collection is over 90 percent of invoice. Similarly, WUAs in Punjab (Pakistan), Gujarat and Maharashtra in India, are given financial incentives on timely collection of irrigation charges.

9. Greater attention is needed during post-intervention phase of PIM reforms to ensure sustainability of WUAs, with focus on the following key areas:

a. Support Services (long term support in consultation with farmers/ users while avoiding increasing dependency).
10. So far, PIM reforms have focused on ‘downstream’ side of reforms, that is, on establishing WUAs, and only little attention has been paid to ‘upstream side’, that is, on reforming public irrigation agencies. Public irrigation agencies have often tended to resist PIM reforms, perceiving threat to staff jobs, budget or their independence. In most cases, agency reforms have been deferred due to reluctance or political difficulty. Consequently, there is often ambiguity, among the agency and WUAs, regarding the division of responsibility, cost sharing and rights to water and infrastructure. Often, there is also un-clarity about what financial and technical assistance government would provide during post-intervention phase of PIM reforms.

Of course, PIM reforms involve substantial changes in functions, roles, responsibilities and authorities of public irrigation agencies. These include moving upstream to improve management at the main canal and river basin level and performing water resource management functions, developing sector policy and regulations and undertaking regulatory activities, and providing support services to WUAs (legal and regulatory support, technical and financial advice, support to improve productivity and profitability of agriculture, and capacity building and training of WUAs). There is a need to clearly define new roles and responsibilities of the public irrigation agency, and its capacity needs to be developed to enable it to adapt to its new roles. The Key message is that for success of PIM reforms, reforming public irrigation agency is as important as establishing WUAs.

11. More attention is also needed on action research on PIM reforms through pilot testing within a framework for learning and scaling up. Pilot experiments may be necessary to clarify modalities and generate support for innovation and for creating a common vision for developing a national strategy. Pilot activities for PIM should be continued even when PIM reforms are under full implementation, because they can tackle additional aspects of reforms requiring experimentation, especially for “second generation” issues, such as WUA federations, innovations in irrigation financing, charging and cost recovery, technology transfer through WUAs, asset management in transferred schemes, agency personnel changes, and development of private sector support services. Another issue of rising importance in many countries is of multi-functionality of WUAs, that is, whether or not WUAs should focus solely on irrigation or whether they should take on multiple functions such as managing irrigation system water used for non-irrigation purposes (such as fish, livestock, domestic use), agribusiness, or marketing. With these other roles including group provision of agricultural inputs, group agribusiness and marketing, sale of water, and other enterprises, the WUAs can benefit their members through reduced transaction cost of these activities and generate resources to cross-subsidize the cost of water for irrigation. The legal framework and the WUAs rules should permit these broader activities. Similarly, there is also an issue of whether or not WUAs should be involved in groundwater management. In surface irrigation systems where groundwater use also takes place, conjunctive use of surface and groundwater generates significant benefits. In such systems, involvement of WUAs in joint management of surface and groundwater can offer an option for participatory management of groundwater resource. Action research is needed to test and promote these ideas.

12. Almost all papers presented at the two global events suggest that efforts being made in promoting PIM reforms should be continued and further strengthened, with greater emphasis needed on ensuring equity in sharing benefits of PIM reforms and sustainability of such benefits – under the pro-poor framework. The papers re-iterate the importance of building capacity, promoting collaborations and partnerships across stakeholders at various levels; and promoting the exchange of information, knowledge, best practices and lessons learned on PIM reforms. Further, the events also call upon national governments, local, regional and international donors, development banks and partners to take facilitating role in promoting PIM reforms, help mobilize financial and technical resources from public and private sources, and provide required assistance to relevant organizations involved in promoting and strengthening PIM reforms. The events also call for further strengthening knowledge base on PIM reforms through
systematic and evidence based international comparative studies evaluating the progress, performance and impacts of PIM reforms – to help address the issues presently facing reforms and to guide the way forward.
Global Development of Farmer Water User Associations (WUAs): Lessons from South-East Asia

Mei Xie

Background – Worldwide Trends in Irrigation Management

Increasingly, irrigation management is moving towards joint management and partnership between governments and farmers and their water groups. Water suppliers, which can be government or semi-government water companies, wholesale irrigation water to farmers or their groups. Usually, governments manage technically and financially complex structures, such as main systems up to secondary canals and structures, and wholesales water to farmer water user associations (WUA), who manage lower level systems, such as tertiary level canals and below and minor structures. There are also places where an entire irrigation system that used to be managed by the government is now operated completely by farmer groups, though these are less common.

The process by which government transfers irrigation management responsibilities from its line agencies or companies to farmer groups is referred to as Irrigation Management Transfer, or IMT. Thus, the focus of discussion below is on irrigation infrastructure that is built, financed and operated by government, and not those that are built, funded and maintained traditionally by farmers themselves (or traditional farmer management). Management responsibilities cover the operations and maintenance (O&M) of irrigation infrastructure. In some countries, they also include the determination of irrigation service fees and collection. Involving farmers in irrigation management – giving them voice in making decisions regarding water distribution and system O&M - is referred to as Participatory Irrigation Management, or PIM.

Many countries are moving towards PIM and IMT, by organizing farmers into water user groups and transferring certain levels of responsibility to them. The name given to these farmer water groups differs from country to country, depending largely on the country’s institutional set up and culture. For example, in many countries (such as Turkey, Mexico, China, India, and most Eastern European countries), the term ‘water user associations’, or WUA, is adopted. In Pakistan, the term ‘farmer organizations’, or FO, is used. In the Philippines, the term ‘irrigators associations’, or IA, is common. In Iran, ‘farmer cooperatives’ is the nomenclature that is used. To simplify, the term WUA is used in this paper to refer to all of the above farmer water groups.

Developed countries, such as the US, France, Germany, Japan, Australia, etc., have implemented IMT since the 1960s and 1970s, while developing countries have done so more recently. Many are developing WUAs to implement IMT, and this is spreading. To name a few, Mexico, Peru, and Colombia in South America; India and Pakistan in South Asia; Turkey and Iran in the Middle East; Uzbekistan and Kyrgyzstan in Central Asia; Albania and Romania in Eastern Europe; Philippines, China, Indonesia, and Vietnam in East Asia; and Mali, Niger, Tanzania, and Egypt in Africa. These countries are at varying stages of WUA development, and others are planning to introduce similar concepts and institutions. Some view PIM, WUA and IMT as a revolution in irrigation management.

Different countries have developed their own WUA and IMT ‘models’, based on their specific cultural, political, institutional, economic and climatic conditions. No two country models are exactly alike. While some are making significant progress, others are facing challenges related to the sustainability of WUA and IMT, and in several countries there has been political or institutional resistance. Many lessons can be learnt and shared among the countries. In order to distill lessons, this paper briefly explores four basic questions and presents some cases from South and East Asia. The four questions are: why were WUAs developed? what did WUA help achieve? who mobilized and supported WUA? How to develop sustainable WUA?

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Global Driving Force – The “Why” Question

In the 1970s and 80s, the world witnessed a large expansion of capital investment in irrigation, as part of the ‘green revolution’. These capital investments were mostly in large-scale irrigation funded and managed by governments. Towards late 1980s, the fiscal burden of the public sector in managing and operating irrigation systems emerged as an issue for many governments, and some infrastructure started to deteriorate due to the lack of funds for adequate maintenance and efficient operations. There was then a shift from investment in new construction and irrigation area expansion to that in rehabilitation and area improvement. Irrigation service fees (ISF) were subsequently introduced in many places, aiming to improve O&M cost recovery. Some countries, such as the Philippines and Malaysia, initiated efforts to promote farmer participation in irrigation management jointly with governments.

For an irrigation system to be sustainable, there should be full cost recovery of O&M spending related to the infrastructure – i.e. water users should pay irrigation service fees (ISF) that can fully cover O&M costs. However, governments have failed to raise enough revenues from ISF (in some places, ‘water fees’) for O&M, and this in turn has led to the deterioration of infrastructure and inefficient use of water. As a result, the measured productivity of irrigation infrastructure often falls behind design targets, as seen in many irrigation systems worldwide. In fact, with appropriate levels of ISF, farmer water users have the incentives to see that their irrigation systems are functional and productive. Their managed systems often cost less than those managed by government agencies.

In the 1990s, institutional reforms took place in many parts of the world, reflected in policies and efforts to improve ISF collection for greater cost recovery, promote farmer participation to improve accountability in irrigation services, and reduce government fiscal burdens. This was done through the devolution of irrigation management responsibilities, especially for lower level irrigation systems, to farmer groups. It was under these conditions that the development of farmer water organizations such as WUA emerged as conduit to communication between the public sector and farmers, and to take over irrigation management. It was done either as a part of national institutional reforms or as pilots under government or donor funded irrigation programs.

The specific driving forces for irrigation sector reforms or for WUA development and IMT differ from country-to-country, depending on political and economic conditions. For example,

- **In Mexico**, it was the economic crisis of the late 1980s that prompted the transfer of irrigation management and infrastructure to water users through WUA, and saw a reduction in number of staff in the irrigation agency and a shift in the role of government agencies.

- **In Turkey**, it was the need to decentralize management to local governments and to reform the state bureaucracy (DSI), which was struggling with the falling budget for O&M of irrigation infrastructure, and the need to expand irrigation to new areas in Eastern Turkey. Learning from the experience of Mexico, the government started the IMT reform and establishment of WUA, and moved some agency staff to new areas.

- **In the Philippines**, it was the need for better ISF collection, which supported a large part of the O&M costs of the National Irrigation Administration, and the need for streamlining of the public sector following the country’s fiscal crisis.

- **In Andhra Pradesh State in India**, the push for reform of its largest public sector entity (the Irrigation Department) and the establishment of WUA were championed by a pro-reform state-level administration and facilitated by the availability of investments in irrigation rehabilitation that were partly-funded by the World Bank.

- **In China**, tertiary and below canal levels used to be the responsibility of village and county authorities through communes. With the economic opening and reform since the 1980s, these levels of authorities largely collapsed and irrigation management at these lower levels were largely left unattended or allowed to deteriorate. This created an institutional ‘vacuum’, for which WUA came at the right time, along with other forms of irrigation arrangements at lower levels.

- **In Albania**, it was the collapse of the communist system and its reform of large state farms into smallholdings cultivated by private farmers that created space for WUA to fill in irrigation management.
In other places, such as Vietnam, Uzbekistan, etc., the development of WUA was promoted by external donor-funded investment projects.

Understanding the driving forces in each country is critical to understanding the lessons and experience from that country, as they determine the local demand for such services and organizations and the eventual sustainability of WUA.

Modalities of WUA – The ‘What’ Question

In most cases, WUA are taking over management responsibility (as opposed to property ownership) of tertiary and below canal levels of irrigation infrastructure. In these cases, government agencies manage main and up to secondary canals and structures, own the property, supervise and assist the WUA that manage tertiary and lower level canals and structures. WUA are typically responsible for the simple operation of gates, cleaning of canals, collecting water charges or ISF from their members, managing their own accounts, and paying for the government agencies for their services. While some countries give freedom to WUA to charge extra fees for the WUA’s own expenditures (China, Mexico, Albania), others require their WUA to submit all ISF charges to the government agencies, which in turn remit a portion to the WUA for farmer managed O&M costs (e.g., Philippines, Iran, Pakistan).

There are also places where WUA (or their federations) have been given the management responsibility for an entire irrigation system – O&M and fee collection, while government agencies simply have regulatory and technical assistance functions (the US, Japan, Albania, some irrigation districts in Mexico, a few cases in the Philippines, etc.). These cases are less common and, typically, such systems are small and less complex.

Transfer of ownership of irrigation infrastructure is less common, and it largely depends on the legal framework of a country. Countries such as Mexico, Albania, have set up special laws to allow the transfer of ownership of irrigation infrastructure to WUA or their federations. Others such as Iran, China, and the Philippines do not have the legal basis or are still working on the legal framework for such transfers.

Institutional Framework – The ‘Who’ Question

The WUA and IMT concepts are relatively new (introduced mainly in the past decade) for many developing countries. Thus, in terms of “who” the main players or implementers are, different modalities have emerged, depending on the institutional set up of a country. To give a few examples, in the Philippines the national irrigation administration (or NIA) has the responsibility for organizing farmer irrigators into irrigators’ associations. This has been defined by its charter since the early 1980s. In Mexico, the national water commission (CNA) was created in 1989 to carry out the IMT program. Similarly, in Pakistan, provincial level irrigation development authorities (for example PIDA in Punjab and SIDA in Sindh) were established in the late 1990s to initiate the organization of WUA in their respective provinces. In China, however, it has been the provincial authorities (local governments) and their irrigation district companies which have taken the major role in farmer mobilization and organization of WUA since 1995. In Iran, the format varies – in some provinces, it was the Operation & Maintenance Companies (OMC), associated with the local water authorities to pilot the WUA; in others, it was the local agriculture branches of the agricultural ministry. In Albania, Uzbekistan and Vietnam, the project management units (PMU) under donor funded investment programs introduced and implemented the WUA, working with the central government agriculture ministries.

Some countries formulated special laws, which identify the responsible entities (Mexico, Albania, Romania, India, Pakistan, etc.). Others do not have specific laws and, instead, issued ministerial circulars and ordinances to facilitate WUA implementation.

Process of Developing WUA – The “How’ Question

This question deals with the process of developing WUA – composition of management structures of WUA, sustainability of WUA, legal status, etc. Each country has its own political, institutional and socio-economic settings. Generally speaking, one can summarize a few commonalities and basic principles.
The process to develop a WUA can take 6-12 months, assuming other conditions are ready. It involves:

- Define legal basis for WUA – by either establishing specific laws or regulations or finding ‘common ground’ among existing laws to clearly define the scope within which a WUA functions – responsibilities, nature of the organization, membership, relationship with members and government agencies, administrative and financial arrangements, water rights, etc.

- Disseminate information to farmers and their groups, carry out campaigns and promotional activities, and train candidate farmer leaders

- Define physical boundaries of each WUA and water group, and collect base data (important for contract negotiations, registration and monitoring & evaluation).

- Prepare WUA by-laws and elect farmer leaders

- Pass by-laws and register WUA

- Provide technical support, capacity building, and supervision

WUA should represent farmer water users in a command area democratically; have legal status to enter into contracts and the necessary authority to manage an irrigation system (partial or whole); operate and maintain irrigation infrastructure that is transferred to them or under their jurisdiction; and have administrative and financial autonomy. The management structure of a WUA is similar across many countries. It mainly consists of an executive board that is elected by farmers and an assembly of farmers or their representatives.

Examples from East & South Asia

In the following, examples are drawn from China and India. Both countries started development of WUA around the same time, in the mid-1990s. Both depend heavily on irrigated agriculture. Both initiated institutional reform in the irrigation sector as a part of their broad economic development policies in the past decade, and yet, they differ in many ways and offer valuable lessons to share with other countries.

It should be noted that there are varying models of WUA in the different states of India and in different provinces of China. In this paper, WUA in Hunan province of China and those in Andhra Pradesh state of India are examined, as they were both pioneers in their respective countries in the establishment of WUA. These models have now spread widely in other states/provinces of the two countries. Comparisons are made below using the questions above: why? what? who? and how?

China, Hunan. WUA has been a recent phenomenon over the past decade. The concept was introduced through the World Bank funded “Yangtze Water Development Project” (1994-2000) that covered Hunan and Hubei provinces. A first WUA was set up in 1995 in China. Since then, over 20,000 WUA have been established across the country. To draw lessons, one should understand why WUA was introduced and the driving forces back then.

Water resources – a critical factor in economic development. Water resources in China total 2,800 billion m$^3$, the 4th largest stock in the world. However, per capita water resources are only 1/4 of the world average, so China is among the countries with the most serious water shortages. Water is thus an important factor for development in China. This in turn has impact on the management of irrigation, and on how water saving benefits brought by WUA are valued.

Water management at different levels of the government. The Ministry of Water Resources (MWR) is the central body making policies and regulations for irrigation management. The actual management of irrigation systems is done locally at provincial level. The bureaus of water resources at the provincial and prefecture levels are each responsible for irrigation schemes within their respective jurisdictions. For example, a large-scale irrigation system
that benefits two or more prefectures is managed by provincial water resources bureau (PWRB). Otherwise, it is managed by a prefecture office.

**Irrigation management prior to 1995** – Farmers typically viewed irrigation as the government’s business. For medium –large irrigation districts (ID), provincial or prefecture bureaus were commonly responsible for the O&M of main to branch/secondary canals and structures. Tertiary and below levels and small systems were managed by irrigation stations that belonged to the county, township and village administrations (Fig.1). There was little participation from farmers, who had no voice in management decisions.

Since the country’s economic restructuring in the early 1980s, the old collective systems by communes collapsed and were replaced by household responsibility-contract systems that allowed for individual small farms. Subsequently, irrigation management at village and township levels became ineffective and complex, given the small land holdings and large number of farmers whose production no more depended on central commune planning but on markets. The attention of lower level administrative authorities also shifted to other economic opportunities. Over-staffing, lack of staff incentives, and chronic shortages of government funds led to inadequate O&M of irrigation infrastructure. Unreliable delivery and inefficient use of irrigation water were common. Farmers were unhappy.

Water fees were collected through several layers - from farmers to farmer groups, village, county, and township irrigation stations, and finally to irrigation districts. Other types of fees were often ‘added’ to water fee collection. Farmers were reluctant to pay. Both central and local governments were eager to search for new approaches to irrigation management. The introduction of WUA was timely, as it filled an institutional vacuum.

**New modality - self-managed I&D district (SIDD).** The modality has two key components (Fig.2): ID =WSC+WUA, where WSC represents the water supply company, which could be a government agency or a semi-government company to supply water to urban and rural users, with users represented on the company board. The WUA represents farmer users. There is a contractual relationship between WUA and WSC, based on water and service provision and fee collection. This modality eliminated multi-layer fee collection and made the supplier accountable (Fig. 3). While WUA has since spread across Hunan and China, WSC are still being developed as they require state agency/enterprise reforms, and this has taken time.

The story of JingTang (JT) WUA illustrates how WUA were initiated and evolved, and their impacts. JT WUA is located in the Tieshan Irrigation District in Hunan. Established in 1998, it covers 370 ha, consists of 4 villages and a

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2 There are over 400 large irrigation districts (ID), defined as greater than 20,000 ha each.
population of 3,632, or 972 farm households. The area grows rice, beans, cotton, and oil seeds. It draws water from the main Tieshan reservoir, 2 small local reservoirs, and 3 pumping stations. It has 3 lateral canals (7.5km.), 13 sub-laterals (8km.), and 108 field canals (26km.). Before 1998, there was no farmer participation in irrigation management, which was considered as government duties. Irrigation fees were collected through multiple layers of administration. Over 30 percent of the collected water fee was for non-water activities, and 55 percent went to pay the salaries of 9 irrigation staff, who were put in place by township authorities. The staff were not accountable to farmers, and had little incentive to improve services. They asked for funds from the local government whenever they needed money for maintenance and repair or for other matters. The shortage of funds and mis-management left infrastructure to deteriorate. Farmers complained often and refused to pay, as there was no guarantee of water delivery to the fields. There were many fights (some resulted in death) among farmers over water and between farmers and local authorities. Irrigation management was viewed as a burden by local administrations, which decided to try the new participatory irrigation management concepts introduced under the World Bank-funded Yangtze Water Resources Project.

JingTang became one of the early pilots. In order to ensure success, it was agreed that WUA development would need to follow five principles. WUA should:

1. be viewed by farmers as their own organization, with democratically elected committees and freedom in financial management, and relative operational independence from government on routine activities.
2. use the hydrological boundary as the WUA boundary.
3. measure water flows at intakes from the water supplier and pay water fees according to the volume of water supplied.
4. collect fees from members and pay directly to the water supplier.
5. have a reliable water supply and functional distribution system.

The provincial government set up leading groups at each level of the administration (from province down to prefecture, county, and village), to guide the WUA program. Extensive training was provided to government officials, farmers, local training institutions in order to raise awareness among public. After the boundary of a WUA was agreed upon with farmers, 37 water groups were defined and group leaders were elected to form a 49-person WUA Representative Assembly (more than 1 representative for bigger groups). The Assembly drafted by-laws and elected the WUA executive committee through democratic election by secret ballot, which was a novelty at that time (Fig.4). All the ballots were achieved, open for inspection. In China, the size of land holdings is relatively homogenous, with differences in land allocations accounted for mainly by their different quality characteristics. Thus, one vote per household was used. The project provided for a WUA office, with space for farmers to gather, to view WUA by-laws and regulations, maps and system layouts, and to examine the financial records of the WUA if desired. These documents are required to be displayed on the wall of a WUA office. The application for the JT WUA was reviewed by the Civil Affairs Agency for their compliance with the five principles.

Irrigation management was transferred from the county-village irrigation stations to JT WUA. In addition, ownership of the 2 small reservoirs and 3 pumping stations (which were funded by the old communes and township governments in the past) were transferred to WUA. JingTang WUA has since been operating and maintaining the infrastructure, determining the level of and collecting water charges from members, and paying fees to the Tieshan Water Supply Company for each seasonal contract. It keeps a certain amount of the collected water fees to meet its own expenditure. The WUA and farmers voluntarily input labor and funds to improve the irrigation infrastructure and expand coverage to new irrigation areas using water saved since the introduction of IMT. From

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As a general rule, if a WUA covers less than 500 ha, the management committee would have 3-5 persons (chairman, deputy chairman, accountant/secretary and technical staff). If it covers over 500ha, a 5-7 person committee may be needed. Tenure is 3 years for committee members.
the large-sized slogans written on walls of the villages that provide guidance and exhortations on individual farmer behavior, it is clear that there has been a massive change of attitudes towards caring for the irrigation infrastructure and towards water savings. Local governments have continued to provide support to rural infrastructure, market access, and agriculture extension to farmers.

Four features about the JT WUA should be highlighted. First, its policy of “Three Transparencies” - water price, irrigated area and actual water volume. This was welcomed by farmers, who disliked the lack of information on irrigation management that had characterized the earlier situation. Second, reduced layers of water fee collection – from four to two (Fig.5). This reduced the financial burden on farmers, and made irrigation providers accountable. Water fees are allowed to vary from year to year, depending on savings from the previous year, and on the needs and expenditures of the WUA. A review of the fee structure is done and voted upon by the Representative Assembly. Third, varying water charges between upstream, mid-stream and downstream users, depending on water availability. Fourth, expanding to other ‘business’, in addition to irrigation, to supplement WUA income. For example, JT WUA used the 2 small reservoirs and numerous water ponds to develop fishery, duck and pig breeding. The income reduced water charges by $4/ha for all members.

Comparing before and after JT WUA, the changes are striking (Fig.6). Water fee is down by 30-45%; water fee collection rate is down from 60% in the past to over 95%; water savings in irrigation by 17%; labor input during irrigation is reduced by 65%, and the saved labors allowed male farmers to seek work outside the villages and earned additional income of $0.5 million each year. Other benefits included improvement in irrigation service and canal maintenance, transparencies in financial management of water charges, farmer income, and reductions in irrigation conflict among farmers.

**China – After 10 years of WUA development.** During 1995 – 2004, the concept of PIM and WUA have been widely accepted in China. Most large and medium-sized ID have adopted the management modality of combining professional management with collective management by farmer groups. There are over 20,000 WUA reported to exist in China now⁴. With an average of 700 -1000 hh per WUA, there could be 14 -20 million members. The lessons are compared to those from India in the following sections.

**India, Andhra Pradesh.** Andhra Pradesh (AP) is the fourth largest state in India. Referred to as ‘rice bowl’, irrigated agriculture is the cornerstone of AP and contributes to over 60 percent of the State’s agricultural production. AP has an irrigated area of 4.8 Mha, consisting of 15 major irrigation projects (>10,000ha each), 75 medium irrigation projects (2,000-10,000 ha), and 12,264 tanks. The size of landholding averages 1.6 ha, with irrigated farms averaging a little less than one ha. Small farms employ around 80 percent of AP’s farmers. The performance of the irrigation sector is critical to AP’s economic growth.

**Irrigation Sector Reform.** The irrigation sector is managed by the ICADD (Irrigation and Command Area Development Department, short name Irrigation Department), which has the second largest state budget, next to the power sector. Up to the early 1990s, irrigation was chiefly the government’s business without farmer participation in decision-making or operations. ICADD primarily focused on the construction of irrigation infrastructure and area

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⁴ Although not all WUA have registered.
expansion, with little attention to the O&M of existing systems. Over the years, irrigation has under-performed, reflected in a decline in net irrigated area, low irrigation efficiencies, low yields and farmer income, and low agriculture growth. The neglect of maintenance of irrigation infrastructure throughout the state was seen as the primary factor in this under-performance. Most funds for O&M were used to pay the salaries of ICADD. To address the sector issues, the state government, under the strong leadership of the Naidu administration, undertook drastic reforms in 1997. The goal was to make service providers accountable to users and emphasize PIM. Farmer empowerment was at the heart of the reform.

The government decided that the reform should be bold and comprehensive, rather than incremental. Three key actions laid the ground: (i) special law on AP Farmers’ Management of Irrigation Systems Act (APFMIS), passed in 1997, which was the first of its kind in India to exclusively promote farmer participation in irrigation management. (ii) extensive public consultation to create awareness and to prepare the public for the big change to come, and build partnerships between the government and communities (known as Janmabhoomi). (iii) tripling water charges to Rs. 500/ha (or US$11/ha), aiming to fully cover O&M costs, and preparing the financial ground for extensive rehabilitation of irrigation systems and for WUA that were to take over a part of irrigation management.

Coupled with the development of PIM and farmer WUA, the State embarked upon massive irrigation rehabilitation investments covering 2.5 million ha out of 4.8 million ha. At the core of the investment program was the World Bank’s AP Economic Restructuring Loan, with an irrigation component of US$300m for 2.5 million ha, and the 3rd AP Irrigation Sector Project of US$422 million, covering about 0.3 million ha. Both projects supported the PIM as well as infrastructure rehabilitation, which was a major incentive for farmers to work together with the government on irrigation management.

A unique feature of AP’s IMT was the formation of over 10,000 WUA in a year, covering the entire State and with an irrigated area of 4.8 million ha. WUA were formed at tertiary and lower levels. Higher level transfer of secondary canals through District Committees (called federation of WUA in other countries) and of main canals through Project Committees (or super-federations) were envisaged under the new law, but have yet to be implemented.

ISF has been traditionally done by the Revenue Department, thus WUA were required to assist the Revenue Department in collecting water charges, instead of being put in charge of the collection. A part of the fees collected were supposed to be returned to WUA (the Philippines has the same arrangement) for their O&M expenditures, which would be fully covered if the remittances reached 90 percent of the fee collection efficiency. But, in reality, the remittance of funds to WUA was only 10% (2005-2006). Even worse, the ISF collection rate was low, averaging 30-40 percent in AP over the past four years. The combination of a low rate with low remittances is threatening the quality of irrigation services by WUA, and their sustainability.

**Results after 10 years of WUA Implementation.** After more than ten years since APFMIS, began implementation, a recent review of AP’s WUA implementation revealed several key issues underlying the successes and failures of the IMT program. The achievements included greater farmer participation in O&M; better water deliveries, especially in several drought years; more equitable water distribution; and improved relations with the irrigation department. Recent surveys indicated that 70 percent of the WUA are still functioning, after a slow period of 2-3 years during the re-election of WUA management committees in 2002. However, the challenges appear to be greater – while the APFMIS Act is comprehensive and satisfactory, its implementation has been an issue; changes in the state government in 2004 affected the pace of IMT implementation; WUA are not in charge of water fee collections, not to mention fee determination; low collection rate; and low remittance rate to WUA. As a result of these factors, the availability of funding resources for O&M remains unresolved after ten years of sector reform efforts – government continues to subsidize irrigation O&M as only 60 percent of the cost is recovered by fees collected, excluding staff costs. There was no staff reduction in the state irrigation agency.

**Comparing Hunan (China) with Andra Pradesh (India).** Both countries piloted WUA around the same time, i.e. in the mid 1990s. The two provinces were pioneers in their respective countries. But the path that the two pioneers took differs significantly.
Andhra Pradesh (AP) adopted a ‘big bang’ approach and established over 10,000 WUA in a short time of over a year. Hunan, like the rest of China, took a ‘gradual approach’ and there are only about 20,000 WUA in total in China after ten years, many set up after 2000-02. AP started the irrigation sector reform with a clear ‘road map’, by putting in place specific irrigation laws to lay the legal basis for WUA operations before establishing the WUA. Hunan, however, undertook the reform incrementally, with ‘trial and error’. WUA are still rooted on existing civil laws, supplemented by new circulars and guidelines issued by the central government, and by the regulations issued by local governments. Even today, there is no special law on WUA. The first regulations at the national level on the functions of WUA and provisional measures on managing irrigation districts were issued in 2005, ten years after the first WUA was established.

Both countries implemented WUA at lower canal levels, and have not moved much to secondary and main canals. In AP, IMT was planned for main canals and even entire systems but has yet to be implemented. In China, the higher level systems are supposed to be taken over by irrigation supply companies, whose boards have representation from the WUA or their federations. This has not progressed as fast as envisaged, since it involves complex institutional reforms, although most provinces have ‘separated’ their irrigation management companies from government departments or bureaus. These companies are semi-government, and are supposed to be financially and administratively independent, although some still rely on subsidies. Moreover, the central government gives provinces a great deal of freedom to develop their own reforms and modalities. This has resulted in a number of forms of irrigation management in any given province-- in addition to WUA and the old collective management at village levels, there is increasing private sector involvement through individual contracting for managing an irrigation system, or a combination of the above.

WUA membership is voluntary in Hunan, similar to Albania, the Philippines, Romania, etc. AP has automatic membership or mandatory participation, as in the case of Mexico. This helps represent poor farmers, who otherwise may be affected by the power of rich farmers already benefiting from their location and large land sizes in the scheme, and who may not need or want the voice of the small landholders. Both systems follow the ‘one member one vote’ system.

In terms of water charges, they are based on area in AP, while 80 percent of irrigation systems in China are moving to charges on water volume. But the most critical difference is that WUA in Hunan not only collect water fees and keep a portion for their own operations, but are also allowed to vary the fee level if agreed by the majority of their members. In AP, water charges are determined and collected by the state Revenue Department. WUA were supposed to get 90 percent of the fees remitted from the revenue department to cover WUA costs. In reality, the remittance has been meager, at 10 percent in 2006. This undermines the financial condition of WUA, making it difficult for them to operate and maintain the infrastructure adequately. In turn, poor services do not provide incentives to WUA members. The water fee collection rate is only 30-40 percent in AP, but over 95 percent in Hunan.

For both countries, WUAs are still in their infancy. How likely will they be sustainable? Although it is early to reach conclusions, some early signs can be observed. In Hunan, both the local government and the WUA are becoming more active in nurturing farmer participation. Gradually, but steadily, the number of WUA is increasing, and the plan of local governments, working with local irrigation supply companies, is to expand WUA to cover all irrigation districts in the next decade. Thus, it can be said with reasonable confidence that WUA in Hunan are likely to be sustained. In the state of Andhra Pradesh in India, however, the signs are not so promising. With the meager financial back-ups, the WUAs lack the financial means (even if they had the will) and incentives to adequately take care of the infrastructure that has been transferred to them. A recent Implementation Completion Report (March 2007, World Bank) of the Andhra Pradesh Economic Restructuring Project rated the sustainability of institutional development of WUA as “unlikely”.

Conclusions

There has been rapid development of WUA in the last decade across all regions. Although it seems too early to conclude if the PIM, WUA and IMT are successful, as sustainability will have to be seen over a span of several

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5 Or 25% if considering back-account.
decades, one can still say with confidence that farmer participation in irrigation management has brought many benefits.

The issue of WUA sustainability is moving to the top agenda of many countries, leaders, water managers, irrigation practitioners and professionals, as well as to the focus of discussion by the International Network on Participatory Irrigation Management (INPIM). Looking at progress in the past decade, one can distill the following conclusions: To develop WUA, there must be a real need and local demands, and there should be some perceived benefits for all stakeholders. To sustain WUA, some basic conditions appear absolutely necessary: (i) reliable water sources and functional irrigation infrastructure; these often require that infrastructure rehabilitation and irrigation improvement go hand-in-hand with WUA development. Even a strong WUA cannot couple with a dysfunctional system or infrastructure with no water supplies; (ii) WUA should have financial means to function, without reliance on government subsidies or donor funds; (iii) land holding and farm productivity should be relatively homogenous among WUA members, avoiding the situation of a few big land holders dominate decision or have disincentive to collaborate; (iv) the productivity and profitability of irrigated agriculture are attractive enough for farmers to collaborate in water management and to be able to pay adequate water charges; and (v) the proper legal framework should be in place, so are sustained political interest, government technical support and capacity building for WUA and farmers.

There is limited literature on the evaluation of WUA performance. Even less so on the evaluation of IMT. Under donor financed projects in which WUA was implemented, there is some documentation on the evaluation. A World Bank study reviewed 42 cases (without going into the details of each case) across countries of IMT implementation, in order to obtain broad lessons and recommendations. In China, studies were carried out by local governments to review if the WUA have met the required principles and have made any impact, using comparisons between areas with and without WUA. A World Bank team carried out a three-phase evaluation of IMT performance during 2003-04 in the Philippines. It was one of the few cases where systematic evaluation on the impact of IMT was done. Given that millions of dollars have been spent on WUA and IMT worldwide, it is time to evaluate systematically the impact of IMT and WUA in irrigation management across the regions and in water resources management.
References

Hunan Tieshan DIFD Project PMO, “Jingtang WUA – Brief”, July 2005


India, AP Economic Sector Restructuring Project (ICR, Draft), March 2007, World Bank


Part III

Country Papers (in English)
Experiences on Water Users’ Associations Development in Romania

Corneliu Tusa, Daniela Paraschiv, Florin Badulescu, and Alexandru Redulescu

Background

Romania, spreaded over an area of 238,391 km², is located in the south eastern part of Central Europe parallel to 46° of northern latitude and meridian to 25° of eastern longitude. It is bounded by south western and southern part of Danube River. Because of its typical geographical location, the climate of Romania is of temperate continental type. In contrast to other countries with territories in Danube basin, Romania occupies most part of Danube area covering 29 percent of its geographic area and 38 percent of river course length (Danube Valley, 2004). Around 98 percent of the rivers in Romanian hydrographical network flow into Danube River. Relief, climate, vegetation and soils are lying in concentric disposal around the Central Plateau of Transylvania.

Agricultural land spreads over an area of 14,852.3 thousand ha (0.65 ha / inhabitant) which accounts for 62.0 percent of the total area. Arable land covers 39.19 percent of the area in the country (0.41 ha / inhabitant) (Anuarul Statistic, 2002 – Romanian Statistical Year book, 2002). Arable land area represents 63.4 percent of the total agricultural area, 3.1 percent of the permanently cropped area and 33.5 percent of grazing fields while pastures represent 33.5 percent (EC. Country Report of Romania, 2002).

In 2000, population of Romania was of 22.4 million with an average population density of 94.1 inhabitants / km². It is below the average population density of countries in European Community (EC). About 4.9 million people work in agriculture, fish breeding and forestry, this accounts for 42.8 percent of the total country’s labor force.

Due to its geographic location, soil and climatic conditions, the Romanian territory is exposed to hazardous actions of nature, occurring under various forms across time and space. Cumulative effects may be generated which result in different forms of damages either minor damages or real disasters. Thus, the geologic hazard may cause soil erosion, landslides and local floods; the hydraulic hazard may cause flooding of plains, soil moisture excess and riverbank erosion; and the climatic hazard generates atmospheric and soil draught, excess of humidity on low lands, floods and wind erosion.

Main Romanian water resources include surface waters as well as underground waters. The former include running waters that flow as Danube river and inland rivers; and still waters which are in the form of natural and artificial lakes. The latter include phreatic waters in dry, sub-humid and humid areas and deep underground water in Carpathian mountain and valley regions.

In Romania, the sector with highest water requirements and the one using the largest amounts is the industrial sector. Then comes the agriculture sector and the population in general.

Role of Agriculture Sector in Romania

Traditionally, agriculture has an important role in the Romanian economy. Soils are fertile and suitable for a sustainable agriculture. But there are also large areas with acidic and eroded soils in addition to soils with low nitrogen and phosphorous contents and heavily weed covered. High frequency of droughts and years with extreme temperature result in reduction of potential yields which are significantly lower than that of Western Europe.

In 1989, contribution of agriculture to GDP was less than 14 percent. In 1997, this proportion reached to 18.5 percent of GDP (MAA, 1998) and thus remained sustainable in the coming years (Hera, Oancea, 2003). In 1998, agriculture generated a revenue of 9.7 billion EURO of which revenues from crops covered a proportion of 54.4 percent, animal breeding sector covered 43.9 percent and agricultural services covered 1.7 percent (EC Country Report for Romania, 2002). Major agricultural produce come from cereals (particularly maize), vegetables, potatoes and fruits. The grain cereals cover more than 60 percent of the cropped area.
Reform measures implemented in agriculture after 1990 (restoration of property rights upon lands, implementation of free prices and market for food products, privatization, agricultural enterprises liquidation and restructuring, institutional reform implementation, reform of farmers’ support system etc.) have had a main goal of macroeconomic stabilization.

Agriculture sector has significant role in the Romanian national economy and in establishing the market – orientated economic system. It has been a good source of employment for other economic sectors before 1989. After that, it sustained the violent impacts of reorganizations and privatization of industry. Though the sector has been given due considerations in the government policies after 1989 but the measures so followed haven’t entirely and properly caught the requisite needs and expected changes.

The land tenure structure is mostly private which is under the process of reformation. The private sector owns over 85 percent of the agricultural land, about 90 percent of animal breeding sector and the largest proportion of agricultural tractors and machinery. The progress of agricultural exploitation comes out of targeted policies: removing of land division process between successors and the commercial plots establishment ranged between 2 or 3 ha; setting up of the tax on agricultural income; and a fiscal adjustment related to the agricultural economic environment.

It seems difficult to build a modern Romanian market economy since it does not have such worldwide patterns as based on the transition from the socialism to capitalism. Some of the agricultural policy mechanisms initiated in line with the experienced developed countries as a support of international bodies haven’t resulted in the expected results. The year 1990 highlights the beginning of transition to a market economy along with a continuous change in agricultural frameworks. Legislative and institutional measures, applied in the first stages, have had either too violent or too slow effects that the market progress to the expected targets could not be materialized. An essential and positive aspect of the Romanian agricultural transition during the last 15 years is the constitution of land tenure system and emergence of market oriented farming.

The European Commission approved the National Plan for Agriculture and Rural Development in 2002. Among the main measures concerning the market orientation of agricultural products to ensure a functional market, a few to mention are: increase in irrigated areas through the rehabilitation of irrigation systems; high competitive products; ensuring domestic consumption; development of wholesale trade; and the extension of ecological agricultural production. Law no.73/2002 regarding agricultural market provides a legal framework for the establishment and functioning of the domestic markets based on these products.

Land Tenure: During collective agriculture ages, cooperatives were controlling 64.8 percent of the agricultural land and 78.9 percent of the arable land. Also, 882 thousand families living in hilly and mountain regions were not included in cooperatives, and they owned 6 percent of the agricultural land area and 3 percent of the arable land. Each family of cooperative members was allowed to do farming on an area of 0.3 ha for their own household needs as a pre-condition to participate in the cooperative activity.

In 1990, according to Law-Decree No. 42, the right of property was reconsidered through increasing such limitation from 0.3 ha to 0.5 ha. Thus, total area under individual property increased to 2.7 million ha (28.6 % of the agricultural land). In 1991, Land Law No.18 was promulgated that enforced fundamental and positive changes to land tenure and property over rural assets. Further, this law was modified and added by Laws No. 169/1997 and 1/2000.

Land reform led to 3 types of land property: State public domain, State private domain and private domain. State public domain may be of national concern or local concern. In the second case, communes, cities or counties control property. State public domain also includes areas covered by land reclamation facilities that include large water conveyance canals, drainage schemes, soil erosion control units and flood protection dykes. State private domain includes lands operated by commercial agricultural companies. Private domain includes land areas owned by private persons and private legal persons. Today it accounts for the largest proportion of agricultural and arable land areas.

Farming Practices: Small land holding along with poor technical know-how of the farmers lead to negligence in implementing proper crops rotation. Lack of technical means adversely affects the agricultural works, which cannot
be performed in due time. In case of small private farms, weeding is mostly done either manually or by using animal driven equipment. Cropping pattern mostly includes hay cereals and maize. Yearly cropped area is decreasing. Use of fertilizers is more restricted, but among nitric fertilizers, the most commonly used is nitrogenous ammonium. The manure is not properly turned to account. In the hilly areas, many landowners have located their lands and perform the tillage perpendicularly on the equally leveled lines, which determine the soil weathering by an erosion process.

**Farmers Organizations:** The synthesis and review of agricultural progress (ownership, operation, production, and marketing) in the transition and actual period highlights that the reform has lagged behind. Also, this review emphasizes the solutions to be applied. Actually, there are three types of basic farmers’ organizations in Romania (Lapusan, 2002) (i) Family agricultural exploitations associated through a varied system of services and marketing cooperatives; (ii) Agricultural exploitation formed by the association of small landowners; and (iii) Large agricultural commercial farms and commercial companies (holding companies) established as a result of privatization process, tenancy, grant, sale and purchase.

Farmers’ structures have been organized after the suppression of former agricultural cooperatives based on legislation approved after 1989 (Law no.31/1990, Law no.36/1991, Law no.16/1994 concerning the tenancy, Law no.166/2000, regarding the agricultural exploitations). These structures are consistent with the structures required by European Union standards. The productive structures do not ensure rational use of lands and performance of functional agricultural market due to a low level of agricultural exploitations to market requirements. The low level of agricultural productivity is correlated with poorly qualified manpower, unsatisfactory wages and poor level of mechanization and employment. The size of an agricultural unit is determined by its resources, use of technologies during the production process and the results obtained. The size of agricultural unit is influenced to a great extend by the form of property.

**Role of Irrigation and Irrigated Agriculture**

This is the characteristic of Romanian climatic regime that droughts, sometimes of very severe nature, create disastrous effects on yields. Studies have revealed that dry and very dry years cover a portion of 70-75 percent, and rainy and very rainy years 25-30 percent (Grumeza, 2002). Due to semi-arid climate, most of the cropped area suffers from drought so yields are uncertain. Net requirement of irrigation water considering 50 percent and 80 percent rates of probability for an average weighted cropping pattern, in the irrigated representative areas (Romanian Plain and Dobrogea) ranges between 150 – 300 mm and 250 – 400 mm respectively.

Main source for irrigation water is the Danube River and its tributaries, mostly the Mureș, Olt, Argeș, Siret and Prut Rivers. The quality of the water is good for irrigation considering the current estimation, Danube River supplies irrigation water to approximately 75 percent of the total area reclaimed for irrigation; the largest part of such area is located on terraces along the Danube River course. In some cases, irrigation schemes are located over an elevation of 150 m above the water level in source, and thus electric power consumption for water lifting is high.

Due to climatic conditions and for decreasing the drought risk between the years of 1965 and 1989, 3.0 million ha of irrigation systems were constructed (Map 1). In designing and execution of the irrigation schemes, the characteristics of the socialist agriculture organized in large sized farms and centralized administration and management was taken into account. Development of areas reclaimed for irrigation was really spectacular the progress of which is shown below (thousands ha).

**Table 1: Development of Irrigated Areas (000 ha)**

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<td>Area</td>
<td>18.0</td>
<td>42.5</td>
<td>199.6</td>
<td>731.3</td>
<td>1474.2</td>
<td>2301.0</td>
<td>2965.3</td>
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During the early stages of irrigation development, the adopted technical solutions were of classic type. They included water conveyance by opened and not-lined canals and irrigation water supply using earthen canals and furrows. After 1970, irrigation schemes were designed and constructed with main supply of pumping stations located close to the water source and with lift pumping stations located on canals (such canals being entirely or
partially waterproof), pressure pumping stations and underground pressurized pipe networks fitted with hydrants to supply the mobile sprinkler equipment.

Broadly speaking, Romanian irrigation is characterized by three terraces. Water is delivered to the first terrace through a gravity supply canal after a primary pump station lifts water from the Danube (or a tributary) and a main pump station lifts again the water to the terrace. Pressure pump stations (SPPs) and buried pipelines supply water for overhead field sprinkler systems that deliver the irrigation water to crops. Higher terraces are supplied by successive second and third lift pump stations on the main supply canals. The overall static lift to the highest terraces can reach over 200 m, and including the SPPs, the total dynamic pumping head for these terraces can exceed to 270 m.

Canals in networks for water conveyance and supply are concrete slabs coated along approximately 1/3 of their total length. Main characteristics of irrigation schemes in Romania are as follows:

- Average density of underground pipes network: 18.5 m/ha;
- Water pumping efficiency: 50-70 %
- Elevation of areas reclaimed for irrigation above the water source: frequently within 20 to 100 m and exceptionally over 150 m;
- Flow metres on the supply network: very few;
- Type of watering equipment used: mostly hand moved, and in fewer cases self-moved mechanized equipment that operates at average and high-pressure (in the range of 2.5-4.5 atmospheres) and watering intensity in the range of 6 - 9 mm/hour.

Irrigation schemes constructed during 1950-1989 were designed to irrigate mainly maize, wheat, sunflower and sugar beet crops. In the early years, irrigation water was commonly supplied to plants by furrows and downwards sloping land surface. Later, the use of sprinkler irrigation was expanded, and currently it is the most widely used irrigation method (over 80 percent).
Area Arranged for Irrigation
Irrigation water is pumped in underground pipes mainly using technical solutions, such as:

- Pressure pump stations (PPS), operating at pressures of 3-8 atmospheres and serving areas (irrigation plots) ranged between 400 – 3,000 ha of total 2.1 million ha;
- Pumping units driven by electric or thermal motors that serve a total area of about 0.3 million ha;
- Mobile Diesel pumping units, which take water directly from canals and pump it in antennas, serving a total area of about 0.1 million ha.

A large proportion of irrigated lands is located on terraces with pumping heights exceeding 50 m above the surface of Danube River. Thus, electric power needed to pump the irrigation water is considerable, and that requires efficient water use. Annual electric energy consumption, after 1980, reached about 2.5 million MWh.

Irrigation Sector Reforms in Romania

**Necessity of the Irrigation Sector Reforms:** Prior to 1989, the state system disguised the extent of the state resource committed to maintain the irrigation service; in particular the under-pricing of electricity hid the non-viable nature of irrigation in the higher terraces. This financial burden began to be felt towards the end of the communist era. Even prior to 1989, older systems were not upgraded and maintenance was deferred. Since then, mainly because of scarce budget allocations and low percentage of costs recovered from users, maintenance was minimized and the schemes have been steadily degraded.

The Irrigation and Drainage Study carried out in 1992 - 1994 (with financing from a World Bank loan) clearly indicated that irrigation is not economical in the higher terraces, even if agriculture is redeveloped. It should, therefore, be discontinued so as to avoid further wastage of resources. Following the conclusions of the study, irrigation of about 50 percent of the total area equipped for irrigation (3.2 millions ha) is uneconomical, even though these irrigation schemes would be rehabilitated and the cropping pattern would be entirely composed of the most valuable crops (Fig.1). The old system of pricing for irrigation (at the level of 1994) used to transfer most of the costs and all risks to the state budget and provided no incentives for developing an economically viable irrigation sector. Uniform tariffs and variable subsidies in place at that moment prevented focus on areas where irrigation is economical.

**Economic Value of the Areas Arranged for Irrigation**

![Figure 1: Economic Value of the Areas Arranged for Irrigation](image_url)
The main reasons for restructuring the irrigation sector were:

- Obsolete institutional arrangements, still existing in the irrigation sub-sector, were designed to serve large state farms and cooperatives under a command economy. There was a need of fundamental restructuring as to turn them to institutions similar to the ones existing within European Union, characterized by more accountability, transparency, flexibility and customer orientation.

- The continuous reduction in budgetary allocations to irrigation activities made the governmental agency in charge with irrigation management (RAIF and SNIF S.A. subsequently) unable to ensure a proper level of maintenance and reliable operation of the irrigation infrastructure. The financial pressure over the state budget increased every year.

- A continuous damage of the infrastructure after 1990 led to a permanent deterioration of performance in all schemes, leading to continuous increase of water costs and the reduction of economic efficiency of irrigation.

- Damage and vandalism actions against the pressure pumping stations, electrical transformers, watering equipment increased and sometimes with the silent blessing of beneficiaries. Under these conditions, the security of assets could not be effectively guaranteed by the government agency;

- Every year the farmers’ interest for irrigation and water applications have been decreased mainly because of reduction of their incomes and own financial opportunities, difficult marketing of agricultural products. Large areas of irrigable land are also kept fallow, thereby reducing the demand for irrigation;

Key Features of the Irrigation Sector Reforms: The Government was committed to reform the irrigation sub-sector, with key policy decisions including restructuring of the governmental agency responsible with the management of the irrigation sector, transfer of management of distribution facilities to farmers organized into Water Users Associations (WUAs), and streamlining state subsidies for irrigation with a switch of these subsidies from the supplier of services to direct allocation to the users and rehabilitation of the economically viable irrigation schemes. Other important factors in restructuring the irrigation sub-sector are recognition that some schemes (and/or scheme elements) serving the higher terraces are not economical and should be closed to reduce the burden on the state budget and the necessity for rehabilitation so as to provide a reliable and effective irrigation service to the end users. The following main principles govern the sectoral reforms:

- Improve efficiency of irrigation use through establishment of Water Users’ Associations entitled to take over ownership of the on-farm infrastructure, on request, and to manage it (including maintenance and operation) for the benefit of their members and other farmers within their territory.

- The users pay the tariffs for irrigation services, which should reflect the actual costs of these services. The annual tariff should include the maintenance cost required to secure a reliable use of infrastructure during the irrigation season. The volumetric tariff should reflect the actual costs for water delivery at the abstraction or consumption point.

- Reform the irrigation subsidy system to introduce economic incentives, discourage farmers from irrigating in uneconomical areas and encourage the concentration of irrigation mainly in economically viable areas.

- Restructuring of the government institutions and separation of management of irrigation schemes from other activities; outsourcing of the maintenance and repair activities will enable competition for contracts and strengthen the private sector.

- Rehabilitation of deteriorated irrigation infrastructure, including provision of on-farm irrigation equipment, in schemes proved as economically viable and where farmers are committed to developing WUAs and intensive use of irrigation facilities.

Preliminary Actions for WUAs Establishment in Romania: The process of WUAs’ establishment and development has been strongly supported by several rounds of technical assistance over a period of more than 5 years.
At the international seminar of INPIM held on April, 1996 in Antalya – Turkey regarding "participatory irrigation management”, Romania participated and recommended a concise and clear Action Plan consisting of the following issues:

1. Objectives of the programme: "participatory irrigation management”
2. Activities to be transferred:
   - Irrigation water delivery in the field;
   - Equipment for water applications;
   - Some parts of the schemes (at the third level) under maintenance and operation;
3. Tasks:
   - For farmers;
   - For the state company (the former Regie Autonome for Land Reclamation);
4. Legal adjustments proposed in order to support the programme;
   - For the establishment of water users associations;
   - Amendments to various laws for a smooth registering and performance of Water Users Associations;
5. Implementation stages;
   - Documentation over the programmes implemented in other countries;
   - Proposals for a proper legislation;
   - Selection of 3 – 4 pilot areas located in different climate and soil conditions;
   - The assessment of results and setting up of an implementation methodology;
   - Multi-media report;
   - Extension.
6. Structure proposed for Water Users Associations;
7. Running period;
   - Legal adjustments (1996 – 1997);
   - Associations establishment (1997 -1998);
   - Transfer (after 1998).

In 1997, the study administrated by the World Bank was aimed at not only identifying the feasible areas for rehabilitation but also to assess the commitment of water users’ to take over the O & M responsibility of the on-farm irrigation infrastructure. The project was successful. The farmers, owners of the agricultural land located into four different irrigation schemes showed their commitment to take under their responsibility the on-farm (tertiary) irrigation management. From early 1999 up to March 2000, another study, funded by the Netherlands Government, was carried out and the main activities and accomplishments of which were the assistance in drafting the initial legislation for WUAs. On the basis of such study, the legal framework was prepared but, unfortunately, no specific rules related to the size or location of the WUAs’ territories were set.

**Legal Framework for WUA Establishment and Irrigation Management Transfer:** Based on the study funded by the Netherlands Government, the Government Emergency Ordinance no.147 on WUAs was adopted in 1999 and approved in 2001 as Law no. 573. Once the legal framework was approved, the WUAs Regulatory Office was set up within the Ministry of Agriculture. The farmers started to establish the first WUAs, thus in the first quarter of 2000, 4 WUAs were established and registered into the National register kept by the Regulatory Office.

The law Emergency Ordinance 147/1999 approved by Law 573/2001 gave indication about the statute composition but the representation system was not specified as a result of which the leaders could represent a specific area and not the whole territory. The legal framework had weak provisions on federation establishment (union of WUAs established at the level of a scheme or part of a scheme autonomous functioning, in charge with the management of the common infrastructure). The statutes authenticated by a public notary should have been approved by the local court that often was not informed about the issuance of that specific law for irrigation water users’ associations. The subsidy mechanism allowed water users organized into WUAs to apply for subsidy to cover the costs with the electrical power and also for the on-farm O & M costs, it was not similar to the EU system. The activities to be performed by the WUAs were limited to irrigation because they were beneficiary of the support from the state budget. WUAs had the status of legal entities and were non-profit organizations.
As the reform of the irrigation sector, had to make regulations both for the water provider and water users, it has been considered an opportunity to come up with some amendments based on the experience gained over a period of 5 years. Consequently, during 2002 – 2004 a new legal framework regarding the land reclamation sector was drawn up.

**Changes of the Legal Framework**

a. *Water Users Associations*

- WUA staff allocation is separate for the administration and execution so as to avoid corruption. There were many cases when one WUA use to have the same staff working both for the Administrative Council and as operation staff.
- WUA territory has to be supplied from one water source only.
- WUA members could be the land owners but also the land users.
- WUA’s name has been changed into water users’ organization (WUO) considering that these associative forms serve the community interest that is why they are called of public interest. This attribute allow WUO to become eligible for any support from the state.
- To approve the WUOs establishment through a ministerial order in order to reduce the time and money spent.
- Insertion of the new concept of setting up of Federation and the way of establishment at irrigation scheme level on the basis of functional criteria, with territory operationally autonomous.
- To allow establishing of organizations of beneficiaries of other land reclamation activities than irrigation: flood protection, drainage and soil erosion protection.

b. *Government Institutions*

- Restructuring of the National Company “Land Reclamation” (SNIF), so that the new administration, National Land Reclamation Administration (NLRA) to be focused only on the land reclamation activities and outsourcing of the maintenance and repair activities will enable competition for contracts and strengthen the private sector.
- Implementation and development of a stable, democratic and transparent partnership between beneficiaries and administrators of public utility land reclamation facilities.
  - Relations between the land reclamation services supplier and the beneficiaries
    - At the level of the sub – units of NLRA (administration units and branches) are organized Supervision Councils that include representatives of the beneficiaries, whose responsibility is to check the activity of NLRA from the point of view of the services costs and quality, as well as of the programming of the specific activities.
    - Publishing of the irrigation tariffs (discussed and endorsed by Supervision Councils) in the Official Gazette.
  - Relations between WUOs and their members
    - The General Assembly of the members is the supreme authority of WUO.

Figure 2 shows the relations between the institutions involved in the irrigation sector.
Figure 2. Irrigation Institutions - roles and processes

**ANIF**
- Management of the primary and secondary systems
- Water delivery to WUOs
- Area contracting with WUOs
- Contract the R & M works with SNIF
- Data recording on irrigation
- Report Annual Tariff subsidy to DADR

**SNIF**
- Performs R & M works both for ANIF and WUOs

**WUOs**
- Request registration to RO
- Management of tertiary system taken over by farmers
- O & M of tertiary system
- Contract the area and volumes with ANIF
- Annual and Delivery Tariffs payments to ANIF
- Report to RO on organizational and technical issues
- Report irrigation data to ANIF
- Request subsidies to DADR
- Contract for R & M, mainly SNIF

**Regulatory Office**
- Verifies documentation and approves WUOs registration
- Provides consultancy to WUOs in registration
- Issues regulations for WUOs activity
- Monitors and evaluates WUOs performance

**DADR**
- Verifies documents, approves and allows subsidies for Annual Tariff, Delivery Tariff and Electricity
c. New Pricing and Subsidy Mechanism

The system had many deficiencies in terms of cost and risk transferred to the state budget. At the same time, the pricing and subsidies mechanism contained no procedure which would lead to a rationalization of the sector in a cost effective way. Policy reforms were required which would lead to a more efficient sharing of costs and risks and provide incentives to guide development of the sector in the appropriate direction (Fig. 3).

![Figure 3. Subsidies for irrigation](image-url)

### d. Cost Recovery of the Irrigation Services (Figure 4.)

The tariffs should reflect the actual costs of these services; the annual tariff should include the cost of maintenance activities needed to secure a reliable use of infrastructure during the irrigation season; the volumetric tariff should reflect the actual costs for water delivery at the abstraction or consumption point.

- The actual cost of delivery will be charged to users. NLRA is obligated to charge users the actual cost of delivery of irrigation water. This varies from SPP to SPP and system to system, and it constitutes one of the incentives with which irrigation will be focused on economical areas.

- Long term service contracts are required. WUOs are required to sign long term service contracts so that NLRA can properly plan its operations, in particular with sections of schemes to maintain operational functions. NLRA undertakes to keep the main system under repair so as to maintain a supply of water to the specified SPPs. In respect of this, a WUO undertakes to pay an annual charge which will broadly cover NLRA’s expenses in maintaining the system as agreed.

- Price has both fixed and variable components: Under the long term contract, the WUOs agree to pay two types of service charge: (i) the annual fixed charge based on the command area of the specified SPPs to cover the maintenance cost, and (ii) volumetric charges for the water consumed to cover NLRA’s variable costs, principally electricity.

### e. Irrigation Subsidy Mechanism

Parallel to the transformation of SNIF into NLRA, the new pricing mechanism contains the following four main features:

- Subsidies are switched from budgetary support for the Governmental Agency to direct support to users: subsidies are allocated only to WUOs to cover part of the irrigation tariffs.
• Subsidies represent a flat rate per hectare across the country. As farmers in the upper elevations, or indeed in areas of low demand, will find their payment for irrigation significantly increasing. This will discourage irrigation in these areas and will assist in focusing irrigation on the economic zone.

• Subsidies are available only after users (WUOs) paid their share of the cost. This will assist LRA in identifying and quantifying demand, and will also ensure that irrigation is better and more economically utilized. The subsidy is paid only through WUOs and only for SPPs for which there is a valid long term service contract. The subsidy would mirror the two-part, fixed and variable, structure of the service charge, with an element of subsidy for both components. This is the main motivation and support for WUA development.

**Figure 4. Irrigation costs recovery**

![Figure 4. Irrigation costs recovery](image)

**Outcomes of the New Legal Framework:** Although the new legal framework entered into force 2 years ago, significant positive trends resulted in:

• Ex-WUA during the reorganization process divided their territory by forming more WUOs on the ground of the continuous and supplied from a sole water source territory as well as on economical criteria by excluding area where irrigation was not applied.

• The structure of the WUOs members changed: the members are mainly formed from commercial societies compared to previous situation when WUAs had mainly individual farmers.

• Orientation of the WUOs members to valuable crops with good response to irrigation.

• The most WUOs were established in the irrigable areas and where the risk of drought is significant.

• The financial resources, implicitly the subsidy, were directed to the irrigable areas with irrigation water demand. Consequently, a decrease in the amount of subsidy was recorded (Figure 5).
Establishment Procedure and Structure of WUOs

a. Establishment

On voluntary basis, an initiative committee, composed of several potential members, generally farmers interested in irrigation application, calls for a preliminary meeting to decide on the delimitation of the territory and to appoint the person responsible for drafting the statute and for taking the necessary steps for the establishment. Later the initiation committee calls for a foundation meeting which shall consider and approve statute. Decisions are taken by simple majority vote of the potential members. The meeting also elects members of the administrative council and audit committee. The documentation is submitted to the WUOs Regulation Office within the Ministry of Agriculture and the establishment is approved through a minister ordinance. Then, the WUO is registered into National Register of Water Users’ Associations kept in the Regulatory Office with the Ministry of Agriculture whose role is to assist in the setting up and functioning of WUOs.

b. Internal Structure

The law gives minimum provisions that the statute of each WUO must include. In general, the internal structure of WUOs consists of a General Assembly, Management Board and a chairperson. The General Assembly is composed of all members. It must meet at least once a year and it deliberates by a simple majority vote. The management Board is composed of at least three members elected for three years. A chair person is elected from the members of the Management Board and represents the WUO in all aspects. WUO staff is separate for the administration and execution.

c. Members

The members consist of natural and legal persons who own or use the agricultural land.

d. Water Delivery and O&M of On-farm Infrastructure

WUOs can undertake purchase of water and its distribution to their members and non-members in the area under their jurisdiction. They can also operate, maintain and replace the irrigation facilities and equipment.
e. Fees and Tariffs

WUOs can levy and collect from their members on-farm irrigation water supply charges, annual membership fee on the basis of the size of land owned or used; and operation and maintenance charges. WUOs can create reserve funds.

f. Ownership of Irrigation Facilities

WUOs can own irrigation infrastructure and related equipment on demand basis.

Progress in Formation of WUOs

Based on the Government Ordinance no.147/1999, until end of March 2000, four WUAs were constituted. Until the end of 2004, 184 WUAs were established covering an area of 684,124 ha, of which significant areas of over 100,000 ha were recorded in 3 counties: Braila, Dolj and Constanta (Figure 6).

At the issuance of the new legal framework in 2004/2005, the process of establishment of WUOs started. During 2005 – April 2007, the average ratio of establishment was about 30 WUOs/quarter. At mid April 2007, there is an area of around 700,000 ha held by 248 WUOs of which 103 represent former WUAs which committed to re-register as organizations according to the law provisions, and 145 are newly established WUOs (Fig.7).
The effect of the law is visible (especially the principle of cost recovery and the cap per hectare of subsidies) considering that nearly 200 WUOs have territories located below 70 m pumping head (around 500,000 ha out of 700,000 ha). Also, the structure of the WUOs members changed: the members are mainly formed from commercial societies compared to previous situation when WUAs had mainly individual farmers.

Most of the WUOs were established in the Eastern part of the Romanian Plain with great tradition in irrigation and where the risk of drought is significant. Very little interest was recorded in the Western part of the Romanian Plain though there are some irrigation schemes that seem to be potentially economically viable. Since the region of Dobrogea is exposed to severe and long term droughts because of the high irrigation costs, the farmers were not interested in establishment of WUOs there (Map 2).

**Future of WUOs**

After the issuance of Law 138 in 2004, water which used to be delivered at a minimal cost has now a corresponding price, with added responsibility of WUOs. The WUOs will bear the cost of O&M of on-farm irrigation infrastructure in addition to the cost of water delivery. Some WUOs are active and some have become inactive. The WUOs have become inactive or non-functional due to the following reasons:

- their leaders have resigned and nobody has assumed the leadership post;
- the irrigable area of the WUO is located at the tail end of the irrigation scheme and is last to be irrigated causing most of the members to transfer to other WUOs located upstream;
- Members do not want to pay the membership fee and the advance tariff for irrigation leaving the WUO with no funds for its operation;
- Leaders do not inform their members and involve them in the WUO activities.

At present, there are classic WUOs with individual membership and commercial WUOs with commercial companies as members. Based on estimate, there are now 69 % commercial WUOs out of the total number of registered WUOs which are transforming its nature from a farmers’ organization to a business enterprise. There is no doubt that these Commercial WUOs have helped in increasing the irrigated area and in transferring the management of the irrigation infrastructure to the private sector. As far as poverty alleviation is concerned, these entrepreneurs in the farming sector are already rich.
The survival of the classic WUOs is dependent on whether it will rain or not. When it rains, the farmers will not pay for irrigation. If the WUO does not receive payment for irrigation, then it has no way of sustaining its operation. The classic WUOs are surviving on “Subsistence Budget” leading to continuous deterioration of irrigation infrastructure.

Only those who can afford to pay the O & M cost in advance will be able to irrigate, and only those WUOs which are able to irrigate every year will survive. It will be difficult to collect an advance payment from small farmers who have the money to pay only after they have harvested their crops. The rich farmers, leasers of small farmers land managed as farm-estate, will be able to pay and sustain the operation of the irrigation infrastructure. The classic WUO which caters to small farmers as water users may not be able to survive because they do not have other financial sources for advance payments of tariff and to maintain the salaries of their staff.

WUOs located at the tail end of the system having difficulty in receiving the water on time will not be able to survive, unless improvements are done on the poor condition of their irrigation infrastructure and they will reach an agreement with upstream and mid-stream WUOs regarding water scheduling.

WUOs Federation at the scheme level can work out among the WUOs to provide control over the distribution of water and the O & M of the irrigation infrastructure. To this end, WUOs leaders should meet to discuss issues on management of the main, secondary and tertiary facilities, the division of O&M responsibilities, the calculation and collection of tariff, water distribution plan and conflict management. The condition of the irrigation facilities should be assessed to determine its functionality in order for repairs or rehabilitation to be done before it is turned over to the Federation.

Once the WUOs in a specific scheme will consolidate and prepare their federation process, the farmer’s management of the scheme will result in better O & M scheduling and execution, and that too in less fees and irrigation charges for water conveyance.
Establishment of WUOs (248 by April 2007)

Map 2

LEGEND
- Above 70 m pumping head
- Below 70 m pumping head
- WUO area above 70 m pumping head (50 WUOs)
- WUO area below 70 m pumping head (198 WUOs)

Non IUS schemes
1. Cochirieni
2. Ciubulea-Gurliciu
3. Cartesti
4. Dumbravesti
5. Bila-Bechet
6. Fulgerii
7. Gh. Doja
8. Bercuit
9. Leva
10. Mureseni
11. Junsani
12. Ulița Vețcă

* according to ICS (Irrigation and Drainage Study) - Bresoi & Parfias, 1994
**SWOT Analysis of WUOs**

**Strengths**

- Setting up of WUOs is beneficial as otherwise most of the irrigation facilities were abandoned or have been used to a very low degree.
- The farmers got the message of better quality services through private management of WUOs.
- The private management of WUOs and the control of General Assembly results in lower costs and prices.
- WUO members became dynamic in demanding irrigation water as the management of on-farm irrigation infrastructure was undertaken by them. As they get benefit of subsidies from the state and have to conclude contracts with the water supplier, they consolidate their relationship with the other stakeholders (DARD, MARD, NLRA).
- Cost recovery from water users is almost achieved; the degree of irrigation charges collection at plot level being very high.

**Weaknesses**

- Poor relationship between the management of WUO and its members reflected poor capacity to collect membership fees and other contributions to WUO funds until the farmer demands irrigation water and are willing to pay charges.
- Weak knowledge of the legal framework and thus less ability to use the available tools for WUO development.
- Low level of involvement in supervising the NLRA activity (branches and administration units) through the Supervisory Councils.
- Subordinated to a small group of people with interests in agricultural activities preventing free initiative and irrigation services effectiveness.

**Opportunities**

- By getting funds raising skills through filing WUO funding, the farmers may access additional funds from local administration or European Union.
- Becoming members of international bodies of Water Users’ Associations, the WUOs may participate in international events and exchange experience on management and funding irrigation activity.
- Participation in General Assemblies increases the cohesion of the local community for implementation of rural development principle.
- Through the Supervisory Councils of Branch and Administrative Units of NLRA, the WUO may act to reorient NLRA as irrigation service provider.

**Threats**

- NLRA resistance in handing over the irrigation infrastructure, with associated measures to take again the old management system by which the state through NLRA will bear the entire responsibility of irrigation infrastructure and carry all the risk and uncertainty.
- The poor operational state of infrastructure will make it impracticable if no investment in its rehabilitation will be made in time, as the price of such rehabilitation continuously increases and thereby going to be unbearable.
Support of the Irrigation Rehabilitation and Reform Project for WUOs

The Project, ‘Irrigation Rehabilitation and Reform’ is co-financed by the Government of Romania and the loan contracted with the World Bank. The implementation of the Project started in May 2004. The main objectives of the Project are as follows:

a) Consolidation of the reform of the irrigation sector
   - Support for NLRA’s initial functioning;
   - Support for WUOs: training for establishment and for management and operation of the on-farm infrastructure, endowment with office and field equipment as well as on-farm infrastructure rehabilitation, including installation of water meters.

b) Rehabilitation of the main irrigation infrastructure
   - Rehabilitation of main infrastructure associated with 150,000 ha: 7 irrigation schemes.

The support for WUOs through the Project could be considered while focusing on: decreasing of the amount of annual and delivery tariffs by increasing the performance of the main irrigation infrastructure as a result of the rehabilitation; decreasing of the internal tariffs of the WUOs because of the rehabilitation of the on-farm infrastructure; and improvement of WUOs activities by endowment with office and field equipment for irrigation application and supervision.

Training for WUOs: The Project will finance several training courses for WUOs staff the scope of which is to make Development and Strengthening of WUOs. Main courses will have the following subject:

i) Organization and Management - irrigation as Business: WUOs will be trained to be effective and efficient in their work. They should understand why it would better to be partner of the service provider NLRA and how to serve its members properly. The business element of irrigation is to be highlighted in the sense that funds are to be collected and payments, contracts, collections, exemptions and sanctions are set to become part of the seasonal routine. Another issue which is essential for an efficient organization is the maintenance of the level of self – management without having to be reminded of the need to perform and be capable of controlling its actions, within setting of Government policies.

ii) Finance, Accounting and Reporting: WUOs should present an accurate picture of the activity in terms of financial issues. They should have the abilities to set up accounts, internal tariffs and fees, follow payments and know the depositing procedure. WUOs need to be able to manage their accounts and books and report to members on this standard and transparent manner. Also, it is important for these organizations to understand and be familiar with the subsidy mechanism and related procedures and to be able to show their Business Management.

iii) Operation and Maintenance of the on-farm Irrigation Infrastructure
   - Plan maintenance and operation and determine the associated costs
   - Elaboration of internal WUO norm regarding the collection procedures to assure funds for timely Operation and Maintenance.  
   - Establishment of a proper cropping pattern associated with optimum irrigation water requirements, with an optimum proportion of traditional crops (wheat, corn, etc) and valuable crops so that the irrigation costs can be recovered.

iv) Procedures and Contracts on Irrigation Services
   - Developing specified time line procedures on agreement and actions required to follow contracts.
   - Drafting reports to DARD and WUO – RO on issues as pricing, tariffs, payments and subsidies.
   - Drafting contract frame for irrigation services, maintenance, etc. and procedures in contract management.

Accession of Funds by WUOs for Physical Support (equipments, rehabilitation)

The financial support granted through the “Irrigation Rehabilitation and Reform” Project for the WUOs for development and strengthening could be accessed by those WUOs fulfilling the following eligibility criteria:
• To be legally established and registered in the National Register;

• To have taken over into ownership the on-farm irrigation infrastructure located within their territory, for which the financing request is made. The on-farm irrigation infrastructure includes the SPPs or the electrical or thermo pumping aggregates and the buried pipes network;

• To be fully operational and to comply with other sub-criteria, such as: an elected Administration Council, hired operational staff, an adopted organization and operation regulation, a separate management staff from the executive one, the membership fee should be cashed for at least 80 percent of the members;

• To have no debts to the irrigation water suppliers, to the energy supplier, to have no current litigations concerning the payment of state budget subsidies;

• To have a multi-annual in force contract, concluded with the irrigation water supplier for the plots for which the request is made;

• To prove that the request for support funds is approved by the General Assembly;

• To have the territory in an area where the irrigation activity is economically viable (water pumping head to the SPP to be less than 70 m), and the irrigation main infrastructure to be in adequate operational state;

• To be able to raise from their members the necessary funds to cover the minimum contributions established through the Project and the whole payment of the design and supervision costs for the rehabilitation works execution. The contribution of WUOs represents 10% of the goods, services or works purchased. The limit of funds is US$ 500,000 per WUO, out of which US$120,000 for goods and US$380,000 for rehabilitation works. Until now, through the Project, 195 of irrigation equipments were delivered to 25 WUOs and 28 sets of IT equipment (1 computer, 1 printer, 1 fax and 1 copy machine) were delivered to 28 WUOs.

Lessons Learnt

• The WUOs established on lower terraces, 80% of the WUOs territories being located below 70 m pumping head, shows that the farmers, water users, easily understood that most of the subsidies are oriented towards economically viable and low cost operation irrigation schemes.

• By private WUO management, members had in time availability of water. The maintenance and repairs work were carried out instantly, thus reinforcing the consolidation between WUO staff and irrigation service beneficiaries.

• Only by local representatives, the Regulatory Office will be able to undertake its main tasks for WUO supervision and monitoring.

• Better irrigation services and participation in decision making will only be possible by federating WUOs at scheme level and preparation for future steps to provide representation in the river basin councils, as basis for real irrigation management decentralization.

• The membership fee is generally paid only by those WUO members who really irrigate. The rest of them even if registered as members behaving as non-members. Some of the WUOs imposed the rule of retroactive payment of membership fees from previous years if a member decides to irrigate after a number of inactive years.

• By action of human factor, the irrigation infrastructure deteriorates year by year and there is a big loss to ensure additional replacement funds. Financial support should be provided either for guarding and protection of such infrastructure or for legal sanctions effective implementation, as per article 82 of the Land Reclamation Law.

• One of the main constraints of EU accession is that subsidies for irrigation schemes operation and maintenance will be phased out, being replaced by financial support for producers groups, rural development and environment protection. By the time the subsidy will be withdrawn, the WUOs should form Federations to take over at least the secondary infrastructure if not the entire irrigation scheme.
References


Agricultural Situation in the Candidate Countries. Country Report on Romania.


Binnie &Partners Ltd (2004) Irrigation and Drainage Study in Romania
Development of Water Users’ Associations and Drainage Management in Albania

Suzana Diamanti, Besnik Bahiti and Eduard Gjoni

Background

Albania is located on the eastern shore of the Adriatic Sea and south-west of Balkan. Based on climate, soils and vegetation, the country is divided into three agro-ecological zones: the fertile coastal plains, the intermediate hilly region and non-arable mountain zone. Agriculture is the leading sector of the Albanian economy accounting for approximately 50 percent of the GDP and 60 percent of the total employment. Irrigation is of vital importance to agriculture.

Although Albania has substantial annual rainfall, the distribution varies from 3,000 mm in the mountain areas to only 800 mm in the coastal areas with less than 20 percent of the rainfall occurring in the six-month period from April to September. Summer crops, such as vegetables, potatoes, maize and watermelons, can only be grown if sufficient irrigation water is available. The yields of perennial crops, such as fruit trees, alfalfa, can be significantly increased under irrigation.

Albania is a water-rich country, compared to other countries in Central and Eastern Europe. On average, total run off 25.7 billion m$^3$ per year, of which 2 percent or 588 million m$^3$ can be stored in 600 irrigation reservoirs. Drainage is important in preventing flooding, erosion and water logging in winter, particularly in the coastal plain. The construction of irrigation and drainage schemes was given high priority under the socialist regime and by mid 1980s irrigation and drainage schemes, covering about 420,000 ha and 280,000 ha, respectively, were constructed.

Irrigation systems in the country are highly fragmented as 55 percent of the irrigation command area is supplied by small systems covering less than 5,000 ha. Some 653 dams and reservoirs supply water to about 184,000 ha and 639 pumping stations with 1,250 electrical pumps provide lift irrigation from river and lakes for about 78,000 ha. Run-off-river schemes account for water on some 160,000 ha, with groundwater supplying remaining 1,000 ha of land under irrigation command.

Irrigation and Drainage Infrastructure Management

Before 1991, the agrarian structure in Albania was fully collective. The land was farmed by about 500 agricultural cooperatives, which comprised approximately 70 percent of the irrigated land and 150 state farms. The systems were centrally administered by Land and Water Department of the Ministry of Agriculture through public enterprises, namely, Water Enterprises (WEs) and Construction Enterprises (CEs) at the district level.

After 1991, about 300,000 ha of irrigation systems and 153,000 ha of drainage systems became non-operational. At this time, privatisation of land was started in the country. As a result, more than 400,000 small farms, of holding between 0.5 and 3.0 ha, were created (with an average of about 1.4 ha). The small private farms with insufficient land, in many cases, have fundamentally changed the character of agriculture and the role of irrigation. As result, the WEs were not able to distribute water to the large number of water users.

Transfer of Irrigation Management to Water Users Associations (WUAs)

In response to the acute crisis in the irrigation and drainage sector, the Government of Albania adopted the policy to transfer the operational responsibilities of secondary irrigation canals to water users through development of Water Users Associations (WUAs), with the operation and maintenance of the primary canals and irrigation reservoirs remaining the responsibility of the state-owned Water Enterprises. However, in 1998 the Government of Albania decided that the responsibility for operation and maintenance (O&M) of the primary irrigation facilities should also be transferred to water users through the Federations of Water Users Associations (FWUAs). With the transfer of system O&M responsibility to water users, the state-owned Water Enterprise were restructured into Drainage Boards whose functions are confined to drainage management and river and flood protection.
The First Project: *Irrigation Rehabilitation Project (1994-99)*

Since 1994, the World Bank has been supporting the Government of Albania, through the Ministry of Agriculture and Food, with the rehabilitation of existing schemes in order to improve their performance so that small farmers would be able to increase their agricultural production and improve their livelihoods. Under the first Irrigation Rehabilitation Project, implemented during 1994 – 1999, the systems in 7 districts covering 70,000 ha of irrigation and 100,000 ha of drainage were rehabilitated. During this period, more than 200 WUAs and 2 FWUA were established.

The Second Project: *Irrigation and Drainage Project (1999-2004)*

The Second Irrigation and Drainage Rehabilitation Project (1999 – 2004) further supported and reinforced the Government’s strategy for improving irrigation and drainage sector. Under this project, systems in 14 districts covering 50,000 ha of irrigation and drainage were rehabilitated and 170 WUAs were established. The project faced four main challenges: (1) to extend rehabilitation across Albania through demand-driven approach, (2) to ensure sustainability through successful irrigation management transfer. Government’s policy was to transfer all irrigation management across the country to WUAs and FWUAs, (3) to restructure the Water Enterprises into Drainage Boards; and (4) to establish FWUAs.


The Government of Albania and the World Bank agreed that a third project would by required as a clear need to expand the initiatives taken under the first and the second projects across the county and to ensure the sustainability of the irrigation and drainage sector by continuing and completing the essential institutional reforms. The overall goal of the third project is to increase agricultural production and establish sustainability of the agricultural sector through the transfer of irrigation management to WUAs and FWUAs and drainage management to Drainage Boards. Specifically, the project aims to pursue nation-wide promotion of the concept of further development and the role of WUAs and the re-alignment of the public sector involvement in the irrigation and drainage sector, also to directly contribute to institutional sustainability by increasing equity and transparency in the distribution of irrigation water.

**Objectives of the project**

- to increase agriculture productivity through rapid rehabilitation of the existing irrigation and drainage infrastructure,
- to alleviate poverty by increasing farm income and creating employment opportunities for people living in the rural areas,
- to ensure long term sustainability of irrigation and drainage investment through farmers’ participation in O&M, efficient system management and adequate cost recovery,
- to reduce risk of floods,
- to support the Government and WUAs initiative towards establishing institutional and legal framework for dam safety.

**Project Organisation**

The Project is being implemented through the Ministry of Agriculture, Food and Consumer Protection. A Project Management Unit (PMU), which is headed by a Project Director, is established within the Ministry for the management of the Project. A Project Steering Committee, comprising the Minister of Agriculture and the heads of the relevant departments within the Ministry, is responsible for overall policy development and for approval of the selection of sub-projects. The PMU is assisted by national and international consultants. Under the project, the full responsibility for operation and maintenance of irrigation systems in 15 districts is transferred to WUAs and FWUAs, which have been established as private, non-profit and farmer-managed associations under the Law on Irrigation and Drainage (Nr.8518).
Project Funding

The Project is funded by the World Bank, Government of Albania and the water users with co-financing by the Kuwait Fund and other financial institutions. The total Project cost is about US$ 40 million.

Project components

The Project has the following four components and corresponding sub-components:

Component 1: System Rehabilitation of reservoirs and headwork’s, irrigation canals, drainage structures and flood control works, including design and supervision.

Component 2: Institutional Support to WUA, Federations of WUAs, Drainage Boards

Component 3: Technical Studies to improve irrigation and drainage designs as well as environmental management.

Component 4: Implementation Support with regard to development of investment programme, project administration and support to Project Management Unit.

Project Progress (by May 2007)

The Project achievements up to the end of May 2007 are summarized as follows:

- Based on World Bank Project, the Government of Albania is implementing the program of transferring O&M of irrigation systems to WUAs all over the country.
- So far 489 WUAs has been established, of which 64 percent are fully functional and cover a total service area of 284,000 ha which has already been transferred to WUAs.
- 17,000 ha of irrigation and 22,000 ha of drainage systems have been rehabilitated and the rest is being rehabilitated.
- Under the project, a dam unit has been established. Nineteen dams are rehabilitated so far, and other 13 dams are in the process of rehabilitation.
- The project is giving institutional support to Drainage Boards.

Development of WUAs

The Legal Basis

The legal basis for both WUAs and federations is the Irrigation and Drainage Law, number 8518 of 30/7/99. The Law permits the formation of WUAs, and indicates where they should be registered and the overall process for transfer of management responsibility for irrigation. The Law covers both WUAs and Federations of WUAs. The Law covers regulation, supervision and control, but no government support is obligatory under Law. In the 1994 Law, the rehabilitation was a prerequisite for formation of WUAs, but this obligation has been removed, and now the prior formation of WUAs and management transfer is one of the pre-conditions for rehabilitation under the demand-driven procedures adopted by the second project.

The Government of Albania, with the support from the WB, is working for amendments of the Law 8518 dated 31.07.1999. In order to have a better performance of responsible institutions and better functioning of irrigation and drainage systems it is necessary that this Law to be amended. The issues that need special attention are: a) drainage boards and WUAs statutes. b) irrigation service fee and cost recovery. c) reservoirs operations. d) participation of Local Government in participatory irrigation management.
Organisational Characteristics

The WUAs are accountable only to their members. They are governed by an Administrative Council elected for a two year period at a general meeting of all members. Chairman appoints the Executive Council, which comprises of the treasurer, secretary and water masters who are responsible for the day-to-day management of the WUA. Usually the Chairman is an elected member of the Administrative Council or General Assembly. The three members of the Executive Council are generally salaried appointments, although salaries are low, and often paid only for the irrigation season, depending on the size and success of the WUA. The Chairman of the Executive Council may also appoint salaried water masters, but these are generally seasonal appointments. Generally, these are not professional grade appointments as the schemes under individual WUA control are mostly small simple open channel, gravity distribution systems, 500 to 1,000 ha in area, and without scope for sophisticated management.

Federations are structured in a similar way, however, membership is defined as the individual WUAs in the system who nominate a representative, generally their Executive Council Chairman. Federations have the same executive council members, but are more likely to employ water masters where main canals are longer in length. The federation’s executive council members are often university graduates (agronomist, engineer, accountant), and federations are more likely to employ watermasters with experience of irrigation management as former water enterprise staff. So far 22 Federations of WUAS have been established in Albania, of which nine are functional and seven have turned into larger WUAs.

Structure

Water User Associations are based on hydraulic units, either small independent schemes, or one or more secondary canals in a larger system. WUA service areas average 500 ha. Federations of WUAs operate the head works and primary distribution network of larger schemes, generally about 5,000 ha. Federations of WUAs are formed on separate schemes, none operate more than one scheme, but in some cases federations manage single main canals in a system comprising two or three such canals. WUAs and federations have full and sole responsibility within their jurisdictions. However, WUAs co-operate with the federations of which they are members, and in some locations, as noted above, there may be more than one federation in a large system.

National Union of SHPU and FSHP

National Union of SHPU and FSHP was established in 2003 at the initiative of WUAs and FWUAs to represent them at various institutional levels to address their problems and issues.

Regulatory Framework

Both WUAs and FWUAs are authorised under the Law to set their own service charge, and there is no involvement of government. The WUAs are encouraged to develop a full and adequate budget allowing proper canal and drain maintenance, as well as covering administrative and staff costs. However, with the schemes newly rehabilitated before handover, the actual maintenance requirement in the first few years is low. Moreover, the hardest task facing WUAs is collection of service charges, so there is naturally a tendency to set the service charge at the minimum.

The 1999 Law establishes the Ministry of Agriculture as the regulatory and supervisory body for WUAs and FWUAs. A department is established within the Ministry that carries out (a) physical and financial audit of WUAs; and (b) analyses and solves conflicts between the parties. During 2006, the audit group has audited 185 WUAs and FWUAs. The number of audits has increased over the years and improvements have been noticed in keeping the technical and financial documentation. Measures have been taken for WUAs that were found with financial breaches, and responsible persons were removed or sued.

WUA Support Programme

- Publicity and awareness campaigns: in order to enhance farmers’ awareness of WUA membership and its importance, a wide publicity campaign was undertaken including organising meetings at village level where
farmers discussed their irrigation related problems. Pamphlets, brochures, posters, etc were distributed showing the purpose of organising into WUAs, and farmers’ roles, rights and responsibilities. Farmers are explained the new ways of organizing themselves.

- **Formulation and adoption of internal rules and regulations:** WUAs function in accordance with the Law, but they need some internal rules for their operations. For this, WUAs have developed internal rules and regulations to carry out their day to day activities.

- **Transparency and accountability:** All activities of WUAs should be transparent so that farmers develop faith in them. The general meeting should be published in order to increase participation of farmers in finding solutions to their problems. Elections of steering bodies of WUAs should be as transparent as possible and the elected people should be the most voted from WUA members. All accounts of WUAs should be reflected in noticeable places so that farmers know where their money goes.

- **Irrigation service fee collection:** Farmers, WUA members should pay irrigation service fee because the money collected through fee is used for operation and maintenance of irrigation network. Irrigation fee payment may be made in advance, and the list of farmers who have not paid the irrigation fee may be published at noticeable places.

- **Operation & maintenance of tertiary canals:** maintenance of tertiary canals is responsibility of farmers. In some cases, this did not apply, that is why awareness campaigns were undertaken with farmers of tertiary units in order to find a solution for their maintenance.

- **Improve water management activities:** training of water masters for timely and quantitative delivery of water and preparation of daily and weekly irrigation schedules in accordance with farmers needs is important.

**Economic and Social Impact of the Projects**

The following is a summary of the economic and social impacts of the projects that involved rehabilitation and development of WUAs:

**Economic Impacts**

- Irrigated crops – almost doubled: upon rehabilitation of canals, farmers are cultivating irrigated crops causing changes in the cropping patterns: 42 percent fodder, 39 percent vegetables and water melon, 19 percent fruit trees and vineyards. Cereals are now grown on much less area.
- Gross farm production increase 40 percent: based on monitoring surveys of 2006, it was found that agricultural production continuous to increase in the project areas.
- Cash farm benefit increased by 250 percent: the same survey shows that the cash farm benefit increased by 250 percent (EIRR is 23 percent).

**Social Impacts**

- Farmers attitude towards WUA is revealed to be interesting and satisfactory. Around 60 percent of population lives in villages and have shown good examples of irrigation management through WUAs as farmers do not hesitate to establish WUAs in their areas.
- Benefit of the project – production increased by 2-3 times that what was without WUA and rehabilitation
- Farmers are aware of the benefits of WUAS, they join the WUA, order water and pay – this is exactly premise of the projects ‘to remove irrigation as a constrain to agriculture’. Farmers that have benefited from rehabilitation of canals and manage irrigation through participation are convinced that they should act in accordance with the law for irrigation and drainage in order to get water in time and quantity the plants need.
Conflict resolution

After 1991, when the number of farms increased and Water Enterprises could not solve the problem of water delivery, conflicts among farmers increased. When WUAs were established, such conflicts over water were reduced.

Women role in PIM

Role of women in agriculture is basic for the survival of the country as has ever been. In irrigated agriculture, women are highly involved in the production activities and many people say ‘women do more then the men’. This is one of the reasons why the PMU is very interested to involve women more than men, as members in the decision making bodies of the WUA’s of the project. Around 10 percent of executive and administrative counsels of WUAs are women.

Major Achievements and Difficulties in WUAs Development

Following are the major achievements and the difficulties in development of WUAs in Albania.

Achievements

- WUAs are accepted from farmers all over the country.
- WUAs manage irrigation systems better than WE, especially where farmers’ incomes are largely dependent on agriculture.
- Establishment of WUAs have reduced disputes among farmers.

Difficulties

- Low/unsatisfactory level of cost recovery and problem of irrigation fee collection/payment by farmers.
- Lack of maintenance in tertiary irrigation network as a result of land abandoned from rural migration.
Development of Water Users’ Associations in Bosnia and Herzegovina

Mario Bajto, Almir Prljaca and Dalibor Vrhovac

Background

Bosnia and Herzegovina (BiH) is located in southeastern part of Europe. It spreads over a territory of 51,129 km². At north, west and south it borders with Republic of Croatia, while in the East it borders with Serbia and Montenegro. In the north, Bosnia and Herzegovina has exit to the River Sava, while in the south it has an exit to the Adriatic Sea in the place called Neum. Terrain in Bosnia and Herzegovina is very hilly and mountainous, with average altitude of 500 m. Of the total surface area of BiH, 5 percent are flat lands, 24 percent are hills, 42 percent are mountains, and 29 percent are Karst. Forests and forest land covers around 50 percent of the territory, while the total surface of agricultural land is around 2.5 million ha, or 0.7 ha per capita. Climate is moderate continental in the north, mountainous in the central part, and Mediterranean in the south.

Administratively, by the Dayton peace agreement, Bosnia and Herzegovina has been divided into two Entities – Federation of Bosnia and Herzegovina (FBiH) and the Republika Srpska (RS). City of Brcko is also an independent administrative unit – a district, which was established in March 2000. The state of BiH is the central authority but it has only limited and specific powers whereas the two entities and the Brčko District are politically, administratively and legally largely fiscally autonomous. The two entities are asymmetrical in their institutional organization. The FBiH is composed of 10 cantons, subdivided into 79 municipalities, whereas the intermediate canton layer does not exist in the RS, which comprises 62 municipalities. In FBiH the cantons have significant fiscal authority. Municipalities are local administrative units within the Entities.

According to the last official census, which was conducted in 1991, Bosnia and Herzegovina had then the population of 4,527,626. The recent war in Bosnia and Herzegovina has lead to heavy migration of population, both within BiH and outside of BiH. According to the estimates of the Statistics Agency of BiH, presently 3,850,000 people live in Bosnia and Herzegovina.

Bosnia and Herzegovina is relatively rich in water resources, however, if those resources are not managed in an appropriate way, in very near future we might find ourselves faced with a deficiency of water. From the aspect of water management, and recognizing the recommendations of the Framework Directive on Waters of the EU, the territory of Bosnia and Herzegovina is divided into two water areas, which are: (i) Sava water basin (around 75% of total territory of BiH), and (ii) Adriatic Sea water basin (around 25% of total territory of BiH). The Sava river basin covers a part of international River Danube Basin (international sub-basin of Sava) that is located on the territory of BiH. Adriatic basin covers parts of international river basins of the rivers Neretva with Trebisnjica, Cetina and Krka that are located on the territory of BiH.

The following table shows gross domestic product of BiH over the recent years:

<table>
<thead>
<tr>
<th>Table 1: Gross Domestic Product Per Capita (various years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Domestic Product per capita (US$)</td>
</tr>
<tr>
<td>2000</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>1337</td>
</tr>
</tbody>
</table>

Agriculture in BiH

Number of people working in agriculture, forestry, hunting and fish farming has been halved compared to the pre-war numbers. In 2000, around 20,000 people were working in agriculture sector, which makes up only 3.2 percent of the total population. This sector’s share in total GDP of BiH went down from 9.2 percent in 1999 to 6.46 percent in 2003. This overview shows only the people registered as company employees. However, far more people have some agricultural production, but they are not included in the employment statistics.
Table 2: Structure of land use in BiH

<table>
<thead>
<tr>
<th>Category of Land</th>
<th>BiH (ha)</th>
<th>Federation BiH (ha)</th>
<th>FBiH (%)</th>
<th>RS (ha)</th>
<th>RS (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total surface</td>
<td>5112879</td>
<td>2607579</td>
<td>51.0</td>
<td>2505300</td>
<td>49.0</td>
</tr>
<tr>
<td>Agricultural land</td>
<td>2557415</td>
<td>1258796</td>
<td>49.2</td>
<td>1298619</td>
<td>50.8</td>
</tr>
<tr>
<td>Crop fields and veg. gardens</td>
<td>1.179.661</td>
<td>508062</td>
<td>43.1</td>
<td>671599</td>
<td>56.9</td>
</tr>
<tr>
<td>Agricultural cultures</td>
<td>1077908</td>
<td>461360</td>
<td>42.8</td>
<td>616548</td>
<td>57.2</td>
</tr>
<tr>
<td>Orchards</td>
<td>95753</td>
<td>41395</td>
<td>43.2</td>
<td>54358</td>
<td>56.8</td>
</tr>
<tr>
<td>Vineyards</td>
<td>6000</td>
<td>5307</td>
<td>88.5</td>
<td>693</td>
<td>11.5</td>
</tr>
<tr>
<td>Meadows</td>
<td>485213</td>
<td>248291</td>
<td>51.2</td>
<td>236922</td>
<td>48.8</td>
</tr>
<tr>
<td>Pastures</td>
<td>861177</td>
<td>502443</td>
<td>58.3</td>
<td>358734</td>
<td>41.7</td>
</tr>
<tr>
<td>Agric. land per capita</td>
<td>0.56</td>
<td></td>
<td></td>
<td>0.90</td>
<td></td>
</tr>
<tr>
<td>Crop fields and veg. gardens per capita</td>
<td>0.23</td>
<td></td>
<td></td>
<td>0.46</td>
<td></td>
</tr>
<tr>
<td>Forest land and bare land*</td>
<td>2709769</td>
<td>1500179</td>
<td>55.3</td>
<td>1209590</td>
<td>44.7</td>
</tr>
</tbody>
</table>

Following are main characteristics of the current state of agriculture in BiH:

- Agricultural issues are under several ministries (agriculture, water management and forestry; energy, mining and industry; trade; finances; displaced persons and refugees.)
- Agricultural financing depends on a number of sources (budget allocations, credits, grants, financing by governments of friendly countries, producers’ own funds).
- Credit funds so far (not good for farmers – average size under 2 ha, around 50 % of arable land is actually sown, surface of grain fields is 0.17 ha per capita, state owned agricultural land is inadequately used).
- Farmers (unregulated status, deteriorated age structure of agricultural population, small percentage of commercial agricultural producers among farmers, farmers have the smallest share of the price of product, weak interest of the young people for agriculture).
- Mined fields – it is suspected that over 200,000 ha are covered with mines (BiH is the most mine-littered country in Europe, and sixth in the world).

Based on information from the Agency for Statistics of BiH, the following table presents an overview of sown grain fields and mostly represented crops.

Table 3: Area and crops sown in BiH

<table>
<thead>
<tr>
<th>Year</th>
<th>Sown arable area (in ha)</th>
<th>Total</th>
<th>Cereals</th>
<th>Industrial crops</th>
<th>Vegetables</th>
<th>Feed crops</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>553000</td>
<td>322000</td>
<td>9000</td>
<td>84000</td>
<td>138000</td>
</tr>
<tr>
<td>2004/2005</td>
<td></td>
<td>556000</td>
<td>318000</td>
<td>10000</td>
<td>84000</td>
<td>144000</td>
</tr>
</tbody>
</table>

As one may see from the table, mostly grown crops in Bosnia and Herzegovina are the bread grains (57%), fodder plants (26%), vegetables (15%) and industrial plants (2%).
Table 4: An overview of sawing by crops:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>81409</td>
<td>73184</td>
<td>89.90</td>
</tr>
<tr>
<td>Rye</td>
<td>3355</td>
<td>4205</td>
<td>125.34</td>
</tr>
<tr>
<td>Barley</td>
<td>20269</td>
<td>21708</td>
<td>107.10</td>
</tr>
<tr>
<td>Oats</td>
<td>18476</td>
<td>17447</td>
<td>94.43</td>
</tr>
<tr>
<td>Maize</td>
<td>195636</td>
<td>196884</td>
<td>100.64</td>
</tr>
<tr>
<td>Sunflower</td>
<td>215</td>
<td>297</td>
<td>138.14</td>
</tr>
<tr>
<td>Rape seed</td>
<td>520</td>
<td>1038</td>
<td>199.62</td>
</tr>
<tr>
<td>Soy-beans</td>
<td>5383</td>
<td>6573</td>
<td>122.11</td>
</tr>
<tr>
<td>Tobacco</td>
<td>2906</td>
<td>2438</td>
<td>83.90</td>
</tr>
<tr>
<td>Potatoes</td>
<td>41512</td>
<td>40756</td>
<td>98.18</td>
</tr>
<tr>
<td>Carrot</td>
<td>1874</td>
<td>1807</td>
<td>96.42</td>
</tr>
<tr>
<td>Onions</td>
<td>5297</td>
<td>5258</td>
<td>99.26</td>
</tr>
<tr>
<td>Garlic</td>
<td>1970</td>
<td>1864</td>
<td>94.62</td>
</tr>
<tr>
<td>Beans</td>
<td>9619</td>
<td>9215</td>
<td>95.80</td>
</tr>
<tr>
<td>Peas</td>
<td>1625</td>
<td>1653</td>
<td>101.72</td>
</tr>
<tr>
<td>Cabbage and kale</td>
<td>6525</td>
<td>6505</td>
<td>99.69</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>4066</td>
<td>3986</td>
<td>98.03</td>
</tr>
<tr>
<td>Green pepper</td>
<td>3858</td>
<td>3852</td>
<td>99.84</td>
</tr>
<tr>
<td>Cucumbers</td>
<td>3108</td>
<td>3155</td>
<td>101.51</td>
</tr>
<tr>
<td>Clover</td>
<td>51570</td>
<td>51911</td>
<td>100.66</td>
</tr>
<tr>
<td>Lucerne</td>
<td>36736</td>
<td>37988</td>
<td>103.41</td>
</tr>
<tr>
<td>Vetch</td>
<td>249</td>
<td>225</td>
<td>90.36</td>
</tr>
<tr>
<td>Mixture of cereals, grasses and leguminous</td>
<td>3332</td>
<td>3322</td>
<td>99.70</td>
</tr>
<tr>
<td>Mixture of grasses and clovers</td>
<td>26143</td>
<td>28703</td>
<td>109.79</td>
</tr>
<tr>
<td>Maize for fodder</td>
<td>15137</td>
<td>17062</td>
<td>112.72</td>
</tr>
<tr>
<td>Forage beet</td>
<td>1759</td>
<td>1898</td>
<td>107.90</td>
</tr>
</tbody>
</table>

Percentage of farming households that are using (cultivating) land in total number of households in BiH is 44.10 percent.

Irrigation in BiH

Bosnia and Herzegovina has a long tradition of using irrigation systems. Some irrigation structures have been built as early as in the late 19th century. However, irrigation systems are not very well developed. In fact only 2 percent of the total arable land of about 1,123,000 ha is irrigated compared to the world average of 15 percent. The lack of water during the vegetation period is key factor limiting the development of modern agriculture. Even if the percentage of irrigated land is higher, the irrigation systems have been seriously damaged due to poor maintenance and the war. The potential for irrigation of arable land in BiH has been estimated at approximately 155,000 ha, while only 4,630 ha are irrigated today.

Until 1990, irrigation existed on total of around 11,620 ha, 3,580 ha of which were covered by local irrigation outside of the system, while the irrigation systems covered around 8,080 ha. The following table shows an overview of irrigation in BiH by water basins:
Main characteristic of irrigation through systems is that it is of newer date (after 1970) and that it existed on social sector owned surfaces, relatively small surface and oriented to a single water capturing facility or resource. Most of these systems were non-functional, and due to war activities, most were deserted and destroyed, or used on symbolic surfaces in the form of local irrigation.

Besides the described irrigation system, on a developed land near water resources, some local irrigation was used where the owners used their own assets to ensure watering of their lands. In such systems, water is taken from a well or open stream near the plot by use of portable pumps on liquid fuel, while the water is distributed by use of plastic or rubber hoses into the furrows and then by infiltration.

The data in Table 6, taken over from the Framework Agricultural Basis for BiH from 1994, shows tentative surfaces that could be used intensively after completion of water management and other projects, and which needs to be irrigated (around 183,600 ha), as well as the potential surface that might be reached in foreseeable future (10 years) as a first phase. Due to the current economic situation, it is difficult to say when the irrigation on the mentioned surfaces could be achieved.

### Table 5: An overview of Irrigation in BiH by basin.

<table>
<thead>
<tr>
<th>Water basin</th>
<th>Within the system</th>
<th>Un-controlled water captures</th>
<th>Total annual water consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Surface</td>
<td>Total annual consumption of water</td>
<td>Surface</td>
</tr>
<tr>
<td></td>
<td>ha</td>
<td>hm³</td>
<td>ha</td>
</tr>
<tr>
<td>Total Sava basin</td>
<td>3550</td>
<td>8.70</td>
<td>2930</td>
</tr>
<tr>
<td>Total Adriatic basin</td>
<td>4530</td>
<td>15.20</td>
<td>650</td>
</tr>
<tr>
<td>Total BiH</td>
<td>8080</td>
<td>23.90</td>
<td>3580</td>
</tr>
</tbody>
</table>

### Table 6: Actual and potential irrigated area in BiH.

<table>
<thead>
<tr>
<th>Name of the area</th>
<th>Water basin</th>
<th>Total area (ha)</th>
<th>Irrigation I phase (ha)</th>
<th>Irrigation Total (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total BiH</td>
<td></td>
<td>430740</td>
<td>21370</td>
<td>183600</td>
</tr>
<tr>
<td>Sava basin</td>
<td>Sava</td>
<td>267086</td>
<td>12600</td>
<td>122700</td>
</tr>
<tr>
<td>Immediate Sava basin</td>
<td>Sava</td>
<td>201186</td>
<td>12600</td>
<td>95700</td>
</tr>
<tr>
<td>Drina basin</td>
<td></td>
<td>5500</td>
<td>-</td>
<td>1700</td>
</tr>
<tr>
<td>Bosna basin</td>
<td></td>
<td>17300</td>
<td>-</td>
<td>10300</td>
</tr>
<tr>
<td>Vrbas basin</td>
<td></td>
<td>5800</td>
<td>-</td>
<td>1500</td>
</tr>
<tr>
<td>Una basin</td>
<td></td>
<td>37300</td>
<td>-</td>
<td>13500</td>
</tr>
<tr>
<td>Adriatic sea basin</td>
<td></td>
<td>163654</td>
<td>8770</td>
<td>60900</td>
</tr>
<tr>
<td>Neretva basin</td>
<td></td>
<td>47261</td>
<td>6640</td>
<td>29950</td>
</tr>
<tr>
<td>Trebisnjica basin</td>
<td></td>
<td>33383</td>
<td>2130</td>
<td>13250</td>
</tr>
<tr>
<td>Karst fields in southwestern BiH</td>
<td></td>
<td>83010</td>
<td>-</td>
<td>17700</td>
</tr>
</tbody>
</table>

### Law on Waters

Year 2006 saw adoption of new entity laws on waters. The laws are harmonized among themselves and largely in line with the EU water-related legislation, particularly the Framework Directive on Waters in EU. The laws fully include the principle of integrated water management at the level of river basin, where a particular emphasis is placed on sustainable use of water for diverse purposes. Water management policy is defined by a water management strategy. In order to implement water management strategy, water management plans are adopted for various water basins.
The chapter “use of water” provides a definition of water use, general use of water, it prescribes measures for quality assurance of potable water, conditions for use of water from wells and underground waters, it establishes the obligation to keep record on captured water. The chapter defines the rights of cooperatives or associations of water users in connection with construction and use of irrigation and drainage systems as follows:

(i) For the purpose of construction or use of amelioration systems for irrigation and/or drainage, which are in the interest of several owners or land users, a special legal person may be established (cooperative, association, etc.)
(ii) The legal person from paragraph 1 of this Article must obtain right to use of water.
(iii) The legal person from paragraph 1 of this article must ensure financing required for amelioration system maintenance and operation.
(iv) The legal person from paragraph 1 of this Article may entrust the tasks of technical maintenance of amelioration system to a legal person registered to perform such activity.

When it comes to water management, public involvement, as well as the involvement of users of amelioration systems, it is to the forefront in the work of the Advisory Council for Waters, in the work of which NVOs from water basins take part (1/3 of members), together with representatives of water users (1/3 of members). Also, the public and stakeholders are allowed to take part in the process of adopting water management plan and process of adopting water acts.

Establishment and Development of Water Users’ Associations in Part of FBiH (Covered by the IDA Project No. 3742 BOS)

One of components of the project on Small Commercial Agricultural Development (IDA 3742 BOS) is irrigation development. The purpose of this sub-component is to ensure reliable water supply to the farmers through revitalization and development of irrigation infrastructure, ensure system reliability through establishment of Water Users’ Associations and Federations of the Water Users’ Associations and help train them for working and managing water and irrigation systems. We have divided this overview into the following sections:

- Rehabilitation and improvement of the irrigation systems;
- Development of a sustainable institutional framework for the irrigation sector, based on Water Users’ Associations and Federations of the Water Users’ Associations;
- Training the water users for the purpose of developing a sustainable institution for operating, maintaining and managing irrigation systems;
- Implementing the environmental monitoring plan.

1. Rehabilitation and improvement of the irrigation systems

(a) Hydro-melioration system (HMS) in Municipality of Ljubuski: the most important system where the Project intervened was the Hydro-melioration system in the municipality of Ljubuski. This system covers the surface of around 3,000 ha, what makes it one of the largest ones in Bosnia and Herzegovina. Water for this system comes from the rivers Tihaljina-Mlade- Trebizat, Vriostice and Studecice, and is distributed through 14 main channels to agricultural surfaces. The system had been greatly neglected, grown into vegetation, so it was hard for water to reach the end of the channel, and impossible to get into some. Revitalization was done by completing the cleaning works in the 43 primary channels in total length of 165 km, in 13 secondary channels, some 2,400 m of primary channels were covered with concrete, 65 plate shutters were installed where needed, two temporary dams were built on the river Trebizat, some 2 km of embankments tops were built along the river of Trebizat, and two fortifications were installed. The works resulted in bringing the water to all plots that had been irrigated before. During 2004 and 2005, the PIU had issued tender for these works, then they selected the contractor and supervisor; they monitored the work, and made the final financial report on the costs.

Part of the funds needed for rehabilitation and improvement of HMS in the municipality of Ljubuski was spent on emergency works as needed and as chosen by the Water Users Association, and for those Associations that are more advanced in their development and that rely on their membership. The works, in addition to their unquestionable
benefit for operability of the hydro-melioration system and resolving some priority problems on the association’s infrastructure, also give an impetus to operation of the associations as self-sustainable communities. A condition for use of the funds is having a functioning association in accordance with the Statute, the number of members of association and participation of the association in works in the share of 30 percent to 50 percent of the funds invested by the Project. During 2006, all preparatory actions were implemented, tenders prepared and material suppliers selected, relations between the associations and the PIU were defined, as well as the relations between the Associations and the municipality, and the works started for 6 WUAs. The works were completed, with exception of one association, where the works are still ongoing. In early 2007, preparations were completed and works contracted for additional 5 WUAs, providing that investments in emergency works as needed and at discretion of the Associations continues in parallel with meeting conditions posed before the Associations. The right to manage and obligation of maintaining the sections built had been transferred by the municipality to the Associations.

(b) Hydro-melioration System in the Municipality of Stolac: the second largest system that had been revitalized and improved was the HMS Stolac. This system covers the surface of around 100 ha, and it had been built for the needs of the Hepok Stolac Company. The water is captured from an open channel leading from the river Bregava. This system had been greatly neglected, and the pump station completely devastated. The system was extended to cover around 150 ha, the existing pipe network was fixed, some new pipelines were installed, and the pump station was completely rehabilitated. The WUA “Stecak” was formed on this systems. The works were completed in March 2007.

For this and every other facility built in the broader area of Dubrave, and before any works started, all necessary information on the area had been collected, all the proposed project had been subjected to scoring procedure, initiating boards for creating the WUAs were formed, the WUAs had been formed, memorandums of understanding signed with the municipalities, memorandums of understandings signed with the PIU, all design documents obtained, mutual relations of the WUA members had been regulated, mutual agreements and agreements signed with the municipalities had been signed, internal acts adopted by the WUA assemblies, competitive bidding procedures implemented for works and supervision, and facilities were constructed to the stage of internal technical acceptance.

(c) Hydro-melioration System in Popovo polje (Sector 6-Hutovo): this is a new system that is located on the part of the Popovo polje that belongs to the municipality Neum. Surface of this system is 100 ha, and it will include the pumping station for water captured from the River Trebisnjica, water reservoir and distribution pipelines leading water to the farms. The Sector of Water Users was formed within the Irrigation Association “Popovo polje” with their seat in Ravno. For this system, designs were made with financing of the field office of the MPDL. Works on this system are planned during 2007.

(d) Hydro-melioration System “Greda” Crnići, Stolac: this system was built on the surface of around 40 ha. The system gets water from a drilled well and water reservoir. Association of water users “Greda” will ensure additional quantities of water. The system was completed and put into function in January 2007.

(e) Hydro-melioration System "Dalmatinka" Oplitići, Čapljin: the existing system was revitalized and expanded, a new pump was installed in the well near the river Bregava, distribution network 3.4 km long covering surface of 5-8 ha was laid. The system is taken care of and maintained by the WUA “Dalmatinka”. The system has been completed and put in function.

(f) Hydro-melioration System "Bistra voda" Bjelojevići, Stolac: the pump station was constructed, water reservoir and distribution network covering some 3 ha of agricultural land. The care of maintenance, operation and management of this system will be taken over by the WUA “Bistra voda”. The system has been completed and is in operation.

(g) Rain micro-accumulation "Gaj" Pijesći, Mostar: a reinforced concrete micro-accumulation of 300 m³ was constructed on the area of waterless settlement Pijesći, with appropriate concrete pouring surface. This micro-accumulation shall be used for emergency watering of around 5 ha of agricultural land and for drinking of cattle. Along with the micro-accumulation, a pool for bathing the cattle was constructed. Maintenance, operation and
management of this micro-accumulation is in hands of the WUA “Gaj”. The micro-accumulation has been completed and put in function.

(h) Rain micro-accumulation "Baščine" Pijesci, Mostar: a reinforced concrete micro-accumulation of 500 m$^3$ was constructed on the area of waterless settlement Pijesci, with appropriate concrete pouring surface. This micro-accumulation shall be used for emergency watering of around 5 ha of agricultural land and for drinking of cattle. The WUA “Bascine” is responsible for maintenance, operation and management of this micro-accumulation. The micro-accumulation has been completed and put in function.

(i) Hydro-melioration System "Škripine" Aladinići, Stolac: water storage, pipe distribution network around 1000 m long were constructed, and pump was installed in the existing drilled well. The watered surface is around 3 ha, with the possibility of extending to additional 2 ha. The care of maintaining, operating and managing this system is under the WUA “Škripine”.

(j) Hydro-melioration System "Cvrke" Aladinići, Stolac: water reservoir and pipe distribution network around 1500 m long were constructed, and 2 pumps were installed in the existing drilled wells. The watered surface is around 3 ha, with the possibility of extending to additional 4-5 ha. WUA “Cvrke” is responsible for maintenance, operation and management of the system. The system was completed and put in function.

(k) Hydro-melioration System "Prokos" Crnići, Stolac: The water reservoir and pipe distribution network of around 260 m were constructed. The watered surface is 2 ha, with the possibility of extending to additional 2 ha. The WUA “Prokos” is responsible for maintaining, operating and managing this system. The system is almost completed.

(l) Hydro-melioration system "Izvor" Crnići, Stolac: the water reservoir and pipe distribution network some 500 m long were constructed, and a pump was installed in the existing well. The watering surface is around 3 ha, with the possibility of extending to additional 2-3 ha. The WUA “Izvor” is responsible for maintaining, operating and management of the system. The system was completed and put in function.

(m) Filter station with the pumping station "Most" in Sector Ravno: the project intervention focused on reconstruction of the main system in Popovo polje in the part that is not covered by the OTC. Presently, the design documents are being prepared for construction of a filter station, financed by the MPDL field office. The works are scheduled to begin in mid-2007.

(n) Rehabilitation of rain micro-accumulations "Šarića lokva" in settlement Gagrice and "Bivolje brdo" in settlement Bivolje Brdo: in cooperation with the World Bank, the USAID had financed the rain micro-accumulation on the location of former ponds, Sarica lokve of capacity of 1300 m$^3$, and Bivolje Brdo, of capacity of 4500 m$^3$. These accumulations were constructed by way of deepening and covering the existing ponds using the PEHD foil. The facilities have been made with some technical faults, so they need to be repaired. These works are scheduled to begin in 2007.

2. Studies on Irrigation Water Pricing

In order to achieve sustainability of the irrigation systems, it will be necessary to assign some values to all links in the chain, including water. Elaboration of procedures and factors that may affect the price of water for irrigation purposes was done in the irrigation water price study, which was completed in 2004.

3. Study on Measuring Water Flow on the HMS Ljubuski

The water management reform, which is one of the goals of the project, is based on more precise indicator than those that had been in use here before. The water is now treated as a scarce resource that has to be managed sparingly. In order to achieve this goal, the project has foreseen measuring of available water for irrigation purposes, and metering the consumption of water. The study: Measuring WATER Flow on HMS Ljubuski was done, which had indicated the needs for equipment and additional measuring. The study was completed in 2004. For the needs
of the field office in Ljubuski, i.e. the needs of the FWUA, a small hydro-melioration wing has been purchased that is used for checking the water flow, as well as the measuring poles that would be installed when implementing the first stage of measuring. The works on measuring water flow on HMS Ljubuski are planned to be implemented in two stages: installing 51 measuring poles, making the Q/h curves, setting up two measuring points equipped with telemetric, development of measuring instructions, what should all be done in the stage one. Installation of the contemporary measuring and data transfer equipment are to be completed in stage two. The works should be done during the low water period in 2007 and 2008. Tender documents have been prepared for the first stage of works.

4. Studies on Technical Support to WUAs on the HMS Ljubuski

The water user associations necessitate some detailed data on their facilities, watered plots and their owners, i.e. users (registry of land, structures and possessors). For larger systems, assistance was provided under the project to ensure as good as possible data base. During 2005, a Study of Technical Support to the WUA on the HMS Ljubuski was done, and it is being made use of. Some programs for processing and use of the data base were procured, and field staff was appropriately trained. A similar study for the HMS Stolac is currently under preparation.

Development of a Sustainable Institutional Framework for Irrigation Sector Based on WUAs and FWUAs

Establishment of the WUAs on the project area and their active work is one of the links in successful agricultural production. Successful WUAs are guarantor of sustainability of measures aimed to securing water for agricultural production. In addition to their all indirect benefits such as: advantages of joining forces in interest groups, increasing collective awareness, raising the level of trust among people, meeting individual needs, etc., they also offer a solution in terms of continuity of maintenance and management of the watering and draining systems. The WUAs are expected to take over operation, maintenance and management of water, parts of the system or whole small systems that should be turned over to them by the current owner.

The present situation on hydro-melioration systems in terms of ownership of irrigation structures, maintenance and management of the structures, collection of funds for financing them is the following: the structures are owned by the Canton, the Municipality is in charge of managing and maintaining the structures in the system, there are no original revenues earmarked for financing hydro-melioration system because the system users are not paying the prescribed fees for covering the costs of ensuring water for irrigation nor costs for draining away excessive water. The situation is much better with smaller systems on the Dubravski plato, where parts of the system are privately owned.

Legislative issues

All 26 WUAs and one Sector that had been established and registered so far had been done so in accordance with the Law on Associations and Foundations 2001, and are based on total freedom of choice of their members. The WUAs do not enjoy any support under the current Law on Waters from 1997. This issue had been a topic of discussion in a number of meetings, study tours and workshop that had produced some recommendations as to how to resolve this problem.

The new Law on Waters, which was adopted in late 2006, makes it possible to establish an association to manage a melioration system, and that it can be turned over to the rights of managing and using the facilities of the system, providing that the Association has to secure financing for maintenance and operation of the melioration system, as well as the right to use the water.

Fundamental characteristic of this law, when it comes to irrigation and drainage, is that it allows for transfer of maintenance and management of hydro-melioration systems onto the association, cooperatives etc., then also that the associations must obtain all water permits for use of water, and that they must secure financing for managing and maintaining the system. Because of this, even though the Law had not entered force yet, the associations should take steps to transfer the maintenance and operation of parts of hydro-melioration system onto the WUAs.
After they had obtained all water acts and rights to manage, operate and maintain the irrigation infrastructure, the Associations would exercise all necessary rights and take over obligations that would enable them to improve and develop further, and ensure sustainability of the system. There still remains a need for continuous internal strengthening of the associations in terms of achieving better organization, efficiency, cost-effectiveness, and financial status.

One should mention that the new Law on Waters treats the Water Users Association as any other water user. The Law does not go into the method of how the Associations would get the rights to use and manage the water structures, and how would they secure financing for operation and maintenance of the system from their members or non-members, supervision over the work of the Associations, except in the terms of water acts issued for this purpose, giving public authorities to associations and the federation of associations, obligations of the water users to report their needs for water. All this has left up to the associations and the federation of associations to decide upon based on free will and individual interests, to adopt the rules that they would comply with. A special problem is the relations with the non-members, and their compliance with the rules of the Association they are not members of. The Law on Waters had not foreseen any public authority of the WUAs, it had not established any control over their work, and it had not regulated transfer of maintenance and management of the melioration systems onto the association.

**Establishment of the WUAs and FWUAs**

Before the process of forming the WUAs started, the PIU personnel responsible for this segment of the Project, with the assistance of a foreign consultant engaged under the project, had been through several seminars held by international experts. A lot of help and direction in this pioneer work here was provided in the seminar that was held in Trebinje on February 5-28, 2004, which was held by Prof. Dr. Lorenzo Avella Reus and Alberto Jose Herras Ferrer, as well as the seminar held in Neum on March 5-7, 2005, also lead by Spanish experts.

Looking up at the normative acts of the Spanish irrigation associations, and with necessary adjustments to our legislation, particularly the Law on Associations and Foundations, we had prepared a set of proposals for normative acts for our Associations (The WUA Statute, Statute of the Sector WUA, Rules of Procedure of Board of Directors, Rulebook on Reconciliation Council Work, Rulebook on Operation of the Watering System, Accounting Manual, Decisions necessary for registration of the WUAs, etc.)

In parallel with implementation of works on revitalization of the system for watering and construction of small systems, some initiative boards were formed for founding the WUAs. In the area of the HMS Ljubuski, the Commission for Support to WUA provided assistance to the PIU Engineer and staff in the Field Office in creating the initiative board. This commission, comprising high officials from the WH Canton and Municipality Ljubuski discussed a possible number of associations, proposed normative acts of the associations, and provided some suggestions for changes and recommendations to the associations.

The initiative boards, with the help of the field office staff, had implemented preparations for convening the foundation assemblies (preparation of normative acts, introductory speeches, explanations, etc.) The founding assemblies elected presidents of associations, their boards of directors, reconciliation councils, secretaries and treasuries. What followed was the registration of the associations with the responsible ministry, making the stamps and opening the giro accounts. With the aim of providing incentive to establishment of the association, the WH Canton bore all costs of their registration. In the HMS Ljubuski region, 14 WUAs and 5 Sectors within the Associations were formed, while in the broader area of the Dubravski plateau, 12 WUAs and one Sector were formed.

Following such detailed preparations, on March 15th, 2007, the Federation of Water Users’ Associations was formed for the territory of the HMS Ljubuski. The associations have each selected their representatives in the FWUA Assembly, and the Assembly adopted the Statute of the Federation. The FWUA is a body that will take care of the HMS on appropriate technical level, consider and take care of interests of the HMS as a whole, in cases of conflicting interests of individual associations the FWUA shall seek solutions related to water and watering, it shall maintain contact with the Agency for the water basin, cantonal and municipal authorities, enable optimal watering to
all associations and fair distribution of available water from the river to the primary channels, represent all associations in the HMS in joint bodies at Cantonal, Federal or National levels. A similar FWUA shall be formed for the Dubravski plateau.

**Commission for Supporting the Associations in the HMS Ljubuski**

During the preparations for beginning of implementation of the Project, in the meetings with the leading people in the WH Canton and the Ljubuski Municipality, a conclusion was made to form a Commission for Support to the associations and to include in this Commission the members who will help establish the WUAs on the territory of the Municipality of Ljubuski. After it was formed, the Commission adopted their activity plan, it held 17 meetings during the period from August 27th, 2004 to date, following their time schedule. The Commission used every opportunity to promote the WUA and lobby and provide training of the managerial structures. Such more active involvement of the municipality in all aspects of the Project was necessary in order to secure joint interests and ensure transfer of water management onto the Associations and the Federation of Associations, as well as to establish sustainable institutions that can react quickly towards their users. In the wider area of the Dubravski Plateau, this work was successfully performed by the representatives of the Field Office.

**PE "Water Area of the Adriatic Basin", Mostar**

PE was informed of the Project and it took active part in several meetings, workshops and seminars, as well as the study tour to Spain. They provided full support to development of the WUAs, achieving sustainability of the melioration systems, introduction of fees for water use and management of water and systems within the associations. The PE or new Agency for Water Area are expected to provide more assistance to the Associations and the Federation of Associations, particularly in terms of making the water management plan and joint resolution of problems on the HMS.

**Water Company "Ljubuški", Ljubuški**

Water company, according to the project, on this the largest hydro-melioration system covered by the project, should have served the associations and be responsible for daily manipulations of the system, maintenance of the primary channels, ensuring the necessary quantities of water for the associations, helping them drafting their operation and maintenance plans, measuring water, water analysis, technical advice to the Associations, etc. Unfortunately, this had not happened, so the Company had remained aside of all events on the HMS. In case that this situation continues, all the above mentioned activities will have to be taken over by the Association and the Federation of Associations.

**Price of Water for Watering and Water Fee**

The study on price of water for irrigation states all things that influence the price of water for irrigation, which should ensure sustainability of the system. Recommendations and information from this study are not yet fully implemented in the field, and the price of water contains fewer factors than necessary. The employees in the field office are monitoring and collecting data relevant for formulation of the price of water for irrigation in the HMS Ljubuski and in the Dubravski Plateau. Most WUA Assemblies have adopted decisions to pay the water fee per surface of irrigated land, or per m³ of supplied water. The funds collected this way should be sufficient to cover the costs of operation, maintenance and management; however, these funds are currently much lesser than necessary. The period for achieving the full price, meaning the price that would ensure full sustainability of the system, could last several seasons. On the wider area of the Dubravski plateau, the situation in this respect is somewhat different because those are mostly small systems using pumps, so the price is closer to commercial price of water.

**Training the Water Users for Developing Sustainable Institutions for Operating, Maintaining and Managing Irrigation Systems**

The training is foreseen to help the Associations and other relevant structure to get actively involved in development of sustainable irrigation, and it is expected to be implemented through organization of study tours, workshops,
training-the-trainers schemes, promotional seminars, and through support to the Associations by organizing courses that include learning and getting the skills to improve irrigation, dispute resolution, management and administration in the WUAs, financial operations, regular work, operation and maintenance works.

**Study Tours**

During 2005, some key people of interest for the project went to Spanish watering associations. The team was introduced to their way of doing things, which has then been modified and implemented here. During the period of December 11-15, 2005, a study tour was organized to Macedonia to visit the reforms in irrigation implemented by the Government of Republic of Macedonia through their project of Rehabilitation and Restructuring, which is financed by the World Bank. This study tour, to which went the PIU irrigation engineer, staff of the Field Offices in Ljubuski and Dubrave, representatives of the water associations from project area, was received very positively in terms of the continued implementation of irrigation under this project. Some experiences from this study tour, visits to the line ministry and watering associations, related to methods of establishing the WUAs, selection of the managerial bodies, delivery of water to agricultural producers, collection of water fee, have been later applied in our project area. During 2007, a study tour was planned for Spain for representatives of the WUAs and FWUA.

**Seminars**

During the period February 5-28, 2004, a seminar was held in Trebinje on the topic of “Sustainable Management of Water for Irrigation”. The seminar was organized by the OTC technical office of the Spanish Agency for international cooperation, and it was offered at a very high professional level. The materials provided were used as a basis for further work of the WUAs. During July 16-18, 2004, a seminar was held in Neum, also organized by the OTC and line ministries from FBiH and Republika Srpska. The seminar was also attended by representatives of line ministries, public water companies, PIUs and WUA. This seminar resulted with recommendations to the responsible agencies on necessary changes to legislation. During June 5-7, 2005, a seminar was organized by the OTC in Neum on the topic of enabling the Water Users Associations in watering, which had helped the audience to expand and deepen their knowledge on water associations. The seminar in Neum organized by MPDL on May 10-11, 2007, also made a significant contribution to evaluation of progress made in development of the WUAs and FWUA, as well as an opportunity to get additional support from the Ministry for Water and their Agencies for the water basins.

**Training-the-Trainers**

During July 15-17, a training-the-trainers event was held in the field office in Ljubuski for employees of the office. The training was provided by the PIU irrigation engineers, and it was intended for training of two workers in the office. The purpose of this training was to provide additional skills to the field office staff to be able to operate continually on the territory of the HMS Ljubuski and provide training to others. The training included the following topics: introduction to the PRMKP document; introduction to Public advocacy; introduction to the Law on Associations and Law on Water; learning about topics from seminars in Trebinje and Neum; agreement on training the WUA staff and members in accordance with a specified program.

On June 1-2, 2006, a training-the-trainer event was organized in Ljubuski for a wider audience. Field office staff from Ljubuski and Dubrave attended, as well as the interested members of the WUAs from Ljubuski and Dubrave. The training was provided by Mome Mladenovski, a Macedonian water community development expert, all in accordance with the contract and terms of reference agreed with the APCU Banja Luka. The training covered the following segments: organizational characteristics of the WUAs; factors of sustainability of the WUAs; drafting the Action Plan for work of the WUA; WUA management and evaluation and planning the WUA operations.

In addition to presentation of the program, six practical exercises were also performed concerning implementation of what the participant heard in small groups and presentation to the panel. The course was found to be successful, even more so because at least seven persons received skills and are ready to continue with similar trainings provided to officials and members of the WUAs.
**Workshops**

On April 22, 2004, in the Ljubuski Municipality, a workshop was held on selection of model of water users association, which was attended by leading people in municipality. The analysis of the current situation in HMS management, solutions that were possible according to then applicable Law on Water, model of water management under the project, the most suitable solution for the given environment, the conclusion was reached on justifiability of establishing the Water Users Associations, and the necessity to proceed with the project implementation in the fastest possible way. On September 1, 2005, a workshop was held in field office Ljubuski for WUA secretaries. The workshop was attended by 7 WUA Secretaries. The purpose of the workshop was to train the secretaries in establishing the WUA administration. On October 6, 2005, a workshop was held in the field office Ljubuski for presidents of the WUA, at the topic “Work of the WUA bodies and preparations for the emergency works”. Seven presidents attended this workshop.

**Support to WUAs and FWUAs**

The PIU Engineer had prepared proposals of regulations for Association and Federation of Associations, operational manuals, training plans for the officials in associations and members of associations, training-the-trainers plan, program of work of national consultants for training, and he took part in implementation of the training. He also made proposals of the WUA Statute, WUA Sector Statute, FWUA Statute, manuals on organizational characteristics of the WUAs, financial management, WUA sustainability, on works and maintenance of the WUA structures, on leading the meetings, collecting the water fee, Rulebooks on work of the Board of Directors of the WUA and on work of the Board of Directors of the WUA Sector, conditions and method of operation of the watering systems, annual financial plans of the WUA, annual work plan and program of the WUA, costs estimates for the HMS, various templates for minutes, presentations in WUA assemblies, decisions, etc.

Staff of the field offices in Ljubuski and Dubrave, while meeting their work tasks from the program of work of the field staff, and after having first studied the recommended topics and materials, worked on continuous training of the officials and members of the Associations using tall forms of contacts with the Associations: meetings of the Boards of Directors, assembly meetings, workshops, individual contacts with members, etc. The training is organized in form of a continuous process, particularly for managerial structures, for operation and maintenance, for finances and conflict resolution for appropriate staff in all registered Associations.

**Training the WUA by National Consultants**

Based on the terms of reference and training program for national professional lecturers, a tender was issued and national training consultants were selected. Implementation of this training is currently ongoing. The trainers have developed their training materials, and they also have printed manuals on all segments of training.

**International Assistance in Training**

Training by international expert is scheduled for 2007, and it is intended primarily for training the Federation of Water Users Associations in connection with the function that this Federation is expected to perform.

**Implementing the Environmental Monitoring Plan**

**Water and Soil Quality Monitoring**

Based on a program made by the PIU, monitoring was implemented on the territory of the HMS Ljubuski. The quality of water used for watering and water in water channels was checked. The soil is analyzed on several locations in the HMS. The results of this analysis are presently within the limits. Monitoring continues in 2007. For the area of Dubrave, a monitoring program was prepared and implementation contracted and is currently ongoing. The quality of water in the sources is monitored, while the soil is analyzed on several locations.
Monitoring the Water Flow and Consumption

This monitoring has not started yet because the measuring poles have not been installed yet to provide for continuous measuring of water flow and consumption. After having procured a small hydro-metric wing and equipment, the field office workers were trained in how to use these devices and measure the water flow, and periodically, series of measuring water flows on the main channels of the system are done. The data on metered flow on characteristic points of the profile are then fed in the data base. Measurements by the hydrometric wing provide important data for distribution of water in the HMS and are used for checking the distribution until the flow measuring in the HMS is established; the installation of the final flow measuring system is scheduled for 2007.

Key Conclusions and Recommendations

1. The projects implemented with the assistance of the World Bank and the Government of the Kingdom of Spain has started the processes that will inevitably lead to faster development of civil society, development of irrigation, sustainability of irrigation and drainage systems and changes in the water management.
2. Establishment of the Water Users’ Associations creates a leverage that will additionally speed up the improvement of irrigation.
3. The international support and assistance is still needed in these and similar projects.
4. Strategic documents need to be adopted on agricultural development, integration of BiH in EU, and legislation has to be harmonized with the EUs. In this way, the pre-conditions would be established to expand irrigation and enable high and stable production in agriculture and food processing industries.
5. The water users have to be continually sensitized for irrigation and local authorities with the aim of ensuring sustainability and development of the WUAs.
6. The legislation need to be improved to open more room for further development of the WUAs and for irrigation as a whole, issuing necessary water acts, collecting the water use fees, and inspection of water users.
7. Maximally use funds from program of subsidies for construction of new and expansion of the existing irrigation system.
National Project of Irrigation and Management of Agricultural Land and Water in the Republic of Croatia

Ana Dobrinic and Vedran Zabka

Introduction

Having in mind the natural potential of the Republic of Croatia – the quality of soil and rich water resources with a favourable climate – it is clear that irrigation is not performed according to the actual potential, significance, and needs. In terms of the size of the irrigated area – 9,264 hectares or 0.86 percent of exploited agricultural land – the Republic of Croatia is one of the last countries in Europe.

The un-competitiveness of present agriculture is the consequence of a low technological level of production, fragmented agricultural plots, and low crops. Droughts are a common occurrence, and the damage they cause to agriculture is estimated at billions of kunas. At the same time, irrigation of agricultural land is insufficient and uses a negligible part of the water potential.

Some of the problems related to inadequate management of natural resources can and must be systematically solved. Thus the Project of Irrigation and Management of Agricultural Land and Water in the Republic of Croatia was launched in 2004 pursuant to the Decision of the Government of the Republic of Croatia. Pursuant to that Decision, the National Committee was established; it is presided by Prime Minister Ivo Sanader and the Minister of Agriculture, Forestry and Water Management, Petar Čobanković, was appointed as his deputy. The Minister has appointed an Expert Team coordinating the preparation and adoption of the strategy of present and future development of irrigation in Croatia, aimed at improving the management of natural resources, organization of agricultural infrastructure, and market economy of agricultural products. The strategy was prepared and adopted by the Expert Team in July 2005 under the title of the National Project of Irrigation and Management of Agricultural Land and Water in the Republic of Croatia – NAPNAV (Project holder: Faculty of Agriculture, the University of Zagreb). The strategy was adopted by the National Committee on October 17, 2005, and by the Government of the Republic of Croatia on November 17, 2005.

It is expected that the measures of systematic organization of infrastructure in agriculture, consolidation of agricultural land and introduction of irrigation and new technologies of production shall result in a more efficient agricultural production. The change in the structure of production shall be initiated by the introduction of more lucrative crops which are currently mostly imported, and, eventually, the Project shall result in a favourable macro-economic effect.

National Framework of the Project

The Existing State of Agriculture, Agricultural Land, and Land Policy

Agriculture in Croatia is marked by years-long decrease in production, unbalanced supply and demand, a permanent negative foreign trade balance, and a gradual decrease of its share in the GNP (1999 – 11.58 percent share, and in 2003 – 9.93 percent share). Thus the economic indicators also point to the inefficient use of available resources, slow turnover of capital, and decrease in the productivity of labour in agriculture.

Trends on the national and global markets of agricultural products do not support increase of production in Croatia. Orientation towards sustainable agriculture and laying stronger emphasis on sustainable management of natural resources in the European Union (EU) will be reflected in Croatia as well in such a way that every planned increase in production will be monitored with full attention. Data of the Central Bureau of Statistics show that in 2003 the total of 1,080 million hectares of arable land and gardens (74 percent of the total area of arable land and gardens) were sown. In the structure of sown areas, grain covers 64.1 percent, oil seeds and crops 8.8 percent, potato 5.8 percent, other vegetables 6.0 percent, sugar beet 2.6 percent, forage crops 11.1 percent, tobacco 0.5 percent, and aromatic plants 0.2 percent.
The dominant segment of agrarian structure is agricultural family farms, which own about 80 percent of land. More than 70 percent of these farms have less than 3 hectares of mostly very fragmented agricultural plots. Even among those with larger plots, there are very few productive and market-oriented farms which would, in current conditions, be able to compete with the imported crops. The average area of used agricultural land by production subject is 2.4 hectares. Agricultural households use on average 1.9 hectares and business entities use 159.2 hectares.

In order to achieve economical and competitive production, it is imperative to:

- Improve the structure of agricultural farms by consolidation of agricultural land,
- Undertake systematic measures for improvement of agricultural land, which include construction of irrigation systems, and
- Develop a stimulating legislative and institutional framework for systematic and consistent implementation of the policy of management of agricultural land and water with the goal of increasing the productivity and achieving sustainable management of natural resources.

**Rationale, Needs and Potential of NAPNAV**

Agricultural areas that are currently irrigated in the Republic of Croatia are relatively small in relation to the needs and possibilities. Rich water potential and fertile soils are not used enough. The average crops of, first of all, vegetables and fruit, but also field crops, are low and fluctuate through the years, which is primarily connected with the occurrence of droughts. In Croatia, droughts occur on average every three to five years and, depending on their intensity and duration, can decrease the crops of various cultures by 20-70 percent. Especially significant were the droughts in 2000 and 2003, when the confirmed damage to agriculture amounted to more than HRK 3.4 billion.

Irrigation is one of the measures by which the damage from droughts can be decreased or completely avoided in certain areas. Reduction of crops of agricultural areas cultivated without irrigation on the territory of the Republic of Croatia amounts to 10 – 60 percent in the average climatic conditions, and in droughty conditions up to 90 percent of the biological potential, depending on the culture, type of soil and area. Along with that, the position of irrigation in the agriculture of the neighboring countries is a sufficient argument for a claim of a better perspective and the position of this measure in Croatian agriculture and economy in general.

One of the important starting points for the planning of irrigation is to identify the availability and quality of water resources. Nowadays, less than 1 percent of renewable water resources is abstracted for all purposes in Croatia. Rational management of water resources for irrigation purposes primarily implies the creation of conditions for ensuring reserves of water for irrigation.

As for land resources, it has been determined that Croatia has about 2.9 million hectares of agricultural land, 244,000 ha of which are suitable for irrigation, and with minor limitations, irrigation can be performed on more than 500,000 hectares.

**NAPNAV Objectives**

The general objectives of NAPNAV as strategic bases for its implementation are the following:

- Analyze and quantify the potential for systematic introduction of irrigation in the Republic of Croatia;
- Define the rights and obligations of all participants in the system;
- The document should be a high-quality basis for planning the introduction of irrigation systems, construction of infrastructure, and realization of plans of production of agricultural crops in new conditions of organized and monitored application of irrigation.

Specific objectives of NAPNAV are:

1. Short-term:
   - preparation of county plans;
   - construction of pilot-projects for irrigation;
2. Long-term:

- review and ranking of further projects for implementation of irrigation on the national level;
- definition of organization and the status of institutions for planning, financing, construction and monitoring of the projects;
- proposal of the dynamics of systematic introduction of irrigation in the Republic of Croatia up to the year 2020.

**Project Activities**

**Defining the Criteria for Establishment of Priorities**

*Ranking of areas according to the priorities on the national level:* The process of defining the priority areas was conducted in several stages, and several criteria were used. The most important criteria for irrigation were the natural potential of soil and water, water deficit, and the socio-economic factors. It has been estimated that in the Republic of Croatia there are about 6,000 hectares of soil very highly suitable for irrigation, the majority of which is in the County of Dubrovnik-Neretva. About 500,000 hectares are highly suitable for irrigation, the majority of which are in the Counties of Osijek-Baranja and Vukovar-Srijem.

![Figure 1: Map of priority areas for irrigation in the Republic of Croatia](image)

*Establishing priorities in the process of nominating projects for construction:* In the process of ranking the nominated projects by priority, along with the criterion of availability of natural resources, the following criteria shall be used:

- Analysis of economic cost-effectiveness (profitability);
- Relative increase of income by surface unit;
- Co-financing;
- Sociological criteria (number of households or other beneficiaries included in the project, possibility of employment, development of rural areas, etc.);
- The degree of development of land where irrigation is planned;
- Consent of the beneficiaries.

**Nomination, Evaluation and Monitoring of Project Implementation**

*Size of systems and potential beneficiaries:* The NAPNAV defines the types of irrigation systems and their sizes, which is in direct correlation with potential beneficiaries. Currently the agricultural land in Croatia is mostly owned
by family agricultural farms, which make a dominant part of the agrarian structure with the average plot size of 0.45 hectares. Business entities that engage in agricultural production use significantly larger plots per entity in comparison with agricultural households; they have a smaller number of plots per entity and larger average size of plot. They all may be interested in the application of irrigation.

The category of very small systems includes irrigated land of less than 5 hectares in size, and small systems are those on the area of 5 – 10 hectares. These are mostly one or more commercial family agricultural farms. Systems of medium size refer to irrigated land of 10 to 200 hectares in size, and potential beneficiaries are one or more family agricultural farms, one or more co-ops, and companies. Large systems are those that are built for irrigation of surfaces larger than 200 hectares. The NAPNAV precisely defines the institutions involved in Project implementation, i.e. the process of nominating and financing individual projects.

Process of Nomination of Individual Projects: The process of nomination of individual irrigation project is initiated by a final beneficiary or beneficiaries by developing a conceptual design and submitting other documents. The beneficiary at the same time agrees to use the constructed systems and take over the rights and responsibilities associated with it, which shall be regulated by legislative regulations. The nominated projects shall be evaluated and ranked by the institutions involved in Project implementation.

Financing the Construction of Irrigation Systems: In the majority of countries which have organized irrigation systems the main investor of infrastructure construction is the state. This project also recommends that the state co-finance the construction of water supply to the plot, while the infrastructure on the plot is financed by the final beneficiary. The share of the state in co-financing shall depend on the size of the plot for which the water supply system is constructed. Construction of systems for small, fragmented and isolated plots makes the construction, as well as maintenance, more difficult and significantly more expensive. Thus the state should stimulate, by the percentage of co-financing, the aggregation of land and association of agricultural producers, which eventually leads to more rational management of constructed systems.

Sources of Funds

The sources of funds include: State Budget of the Republic of Croatia, EU pre-accession funds, the World Bank, Commercial loans with state guarantee, and Local government

Dynamics of Construction

By 2010, irrigation systems shall be constructed on new 35,000 hectares of agricultural land, i.e. by 2020, on a total surface of 65,000 hectares.
Legal Framework

Irrigation as a form of water use is defined by the Water Act, while the Water Management Financing Act lays down a charge for such form of water use. The acts also prescribe the method of obtaining a concession for ameliorative irrigation. In view of systematic introduction of irrigation, several regulations which would more thoroughly regulate the manner of using and operating irrigation systems, the manner of calculating and collecting prescribed charges, etc. are in preparation.

Overview of the Activities and Investments in Irrigation for the period 2004-2006

The following organizational changes have taken place so far within the activities on NAPNAV’s realization:

- Pursuant to the Regulation of the Government of the Republic of Croatia on the internal organization of the MAFWM, the Department for Ameliorative Irrigation has been established within the Water Management Directorate – Water Management Sector.
- Pursuant to the Decision of the general manager of Hrvatske vode (HV), a Working Group for the Implementation of the National Irrigation Program has been established within Hrvatske vode. This group consists of 4 employees in HV’s Head Office, and of 1-2 employees in 4 Water Management Departments (WMD) (WMD Sava, WMD Osijek, WMD Rijeka, and WMD Split).
- Task teams for coordinating and monitoring the preparation of county irrigation plans are established at the level of counties (team members are the representatives of the Ministry, Hrvatske vode, and competent experts from county services: agricultural experts, civil engineers specializing in hydraulic engineering). It is through these task teams that final beneficiaries express their needs and interest in introducing irrigation on their agricultural land.

So far, the NAPNAV has been carried out through the following three stages:

Stage I: County irrigation plans (CIP),
Stage II: Pilot-project of irrigation (PPI),
Stage III A: Project documents for individual irrigation systems (IS), and
Stage III B: Repair/reconstruction of existing and construction of new irrigation systems.

Stage I:

County irrigation plans (CIP) are the key planning documents defining the potential and needs for the irrigation of agricultural areas on the territory of a county. In the previous period the preparation of such plans began in 18 of the 21 counties; 7 county irrigation plans have been adopted, 4 are pending adoption (under review), and 7 plans are in the process of preparation. The plans are expected to be completed and adopted in 2007. Fifty percent of the funds required for the preparation of the above plans are provided by the Ministry of Agriculture, Forestry and Water Management, while the remaining 50 percent are provided by each individual county.
Stage II:

Under the NAPNAV, four national pilot projects of irrigation (PPI) have been defined:

- The multi-purpose Sava – Danube canal (irrigation of the valley of Bida-Bosut polje);
- The Opatovac irrigation system (the County of Vukovar-Srijem);
- The Kaštel-Trogir-Seget irrigation system (the County of Split-Dalmatia); and
- The lower Neretva irrigation system (the County of Dubrovnik-Neretva);

Expected impacts and benefits of the pilot-project:

- Rapid procedure for analyses of costs and economic justification and of the introduction of irrigation system;
- Optimizing the quantity of research and measurement required for system design and introduction;
- Defining and optimizing management measures under the given agro-ecological conditions;
- Providing the basis for the adoption of legal regulations and subordinate legislation related to problems with construction, maintenance and operation of irrigation systems;
- Training of participants in the system, raising the general level of knowledge, and strengthening the capacity of staff on the local level;
- Testing new irrigation techniques and environmental impacts.

The initiation of works on the construction of the Opatovac reservoir (in the municipality of Lovas) in September 2006 marked the realization of the Opatovac national pilot-project of irrigation. Terms of reference have been defined for the remaining three national pilot projects, and authors of technical documentation (on the level of conceptual design – location permit) have been selected. The funds needed for the realization of these 4 national
pilot projects are provided by the Ministry of Agriculture, Forestry and Water Management.

**Stage III:**

Project documents for individual irrigation systems (IS) are being prepared for the known users and locations of irrigation. Conceptual and main designs are in preparation, and for those which have been prepared the issuance of appropriate location permits is under way. In this stage, 12 counties are covered with 32 projects. The projects are supported by the Ministry of Agriculture, Forestry and Water Management with the amount of 50 percent of their value, while the remaining part is provided by the counties and towns or the final beneficiary.

Pending the preparation of technical documents and issuance of required permits for the construction of new systems, the reparation of the existing irrigation systems was launched. In the period 2004 – 2006 the following two systems were repaired and put into operation:
1. *Vransko polje irrigation system* (the County of Zadar) – 483.74 hectares; beneficiary: “Vrana” d.o.o. Biograd n/m, production of vegetables, ensilage corn, and wine grape; the final beneficiary participated in the system’s repair with its own funds.
2. Grabovo irrigation system (the County of Vukovar-Srijem) – stage I, 500 hectares; beneficiary: “Vupik” Vukovar; production of vegetables and field crops; the beneficiary participated in stage I of system’s repair with HRK 2 million.

Along with the above-mentioned systems, some hydraulic structures used for irrigation (reservoirs, pumping stations and irrigation canals) in Dalmatia underwent partial repair in the previous period.

**Problem of Land Fragmentation**

The fragmentation of production areas poses great problems and imposes constraints to organizing profitable and efficient agricultural production, and is one of the main limiting factors to more rapid development of agriculture in Croatia. Land consolidation in Croatia has long been known as a measure for combining and developing production areas with the purpose of efficient agricultural production on agricultural farms. From the first modern *Land Consolidation Act* from 1902 to 1990, land consolidation was carried out on economically richer areas, and their intensity depended on socio-economic circumstances.

This Ministry is, in cooperation with the Swedish Government, implementing a joint project “Consolidation of Agricultural Land in Croatia”, whose implementation is based on the following two instruments:

- Consolidation as a measure of development of agricultural land,
- Establishment of a land pool as a measure of improving the market of agricultural land.

The project encompasses 5 pilot projects of agricultural land consolidation at 5 locations in 4 counties:

- The County of Primorje-Gorski kotar,
- The County of Vukovar-Srijem,
- The County of Zagreb, and
- The County of Varaždin.
The purpose of the project is to support the development of national policy of agricultural land consolidation.

**The Lower Neretva Irrigation Pilot Project**

The valley of the lower course of the Neretva River in the Republic of Croatia (the Lower Neretva) is a specific area of some 12,000 hectares, in which everything has always been adapted to the water regime of the natural environment. Five locations, with the total area of 1,620 hectares, are under protection. According to the Physical Plan of the County of Dubrovnik-Neretva, the entire Lower Neretva area is envisaged for protection within the category of a nature park, while the Parila area and Kuti Lake are proposed to be protected as a specific zoological (ornithological) reserve.

Agricultural production in the Lower Neretva area takes place at around 5,370 hectares of agricultural land, a larger part within the meliorated system, and a lesser part on an inundated area. Melioration operations, intensification of agricultural production, and introduction of new crops have resulted in rapid socio-economic changes, accompanied with a rise of the standard of living of the inhabitants in the Lower Neretva area.

The salinization of arable land due to the lack of freshwater during droughty periods is an obstacle to agricultural production in these areas. This can be prevented by freshwater irrigation. Water in the Lower Neretva area is salty and brackish, and the inflow of non-saline water is very low. Within the existing irrigation system, water of proper quality abstracted from the Neretva River upstream of Metković (the territory of Bosnia and Herzegovina) is supposed to be transferred to the profile of the Mala Neretva River in Opuzen, with the aim of preserving a freshwater basin with the area of ca. 2,500 ha (aquatic and wetland) and distributing water to plots on ca. 3,600 ha. The adopted concept has in practice proved as an operationally expensive and inefficient solution which meets the needs of only a part of agricultural areas.

In terms of improving and optimizing the existing status of irrigation, *The Study of Irrigation in the Lower Neretva Area* (The Faculty of Agronomy, 2006) was initiated. It analyses agricultural production and irrigation conditions in the Lower Neretva area in detail with alternative solutions for the main water supply line leading to arable land. Seven alternatives and 3 sub-alternatives have been prepared. After several public and expert presentations of the study, two solutions were adopted as optimal:

- Abstraction of water from the Neretva River at a location downstream of Opuzen through construction of a new cut-off which prevents the salt wedge intrusion,
- Abstraction of water upstream of Metković (out of reach of salt wedge), with optimization and modernization of the existing irrigation system.

On the basis of the adopted concepts, terms of reference for the preparation of a preliminary design of the irrigation system for both alternatives were prepared at the end of 2006, i.e. terms of reference for the conceptual design for that alternative which will be selected as the most acceptable following the adoption of preliminary designs. Terms of reference for the preparation of the main design for a part of the Lower Neretva irrigation pilot project in the area of 450 ha have also been prepared.
Conclusion

Winding up the overview of the contents and realization of the National Project of Irrigation and Management of Agricultural Land and Water in the Republic of Croatia (NAPNAV), it is important to point out that this Project is in the first stage of its realization, where emphasis is put on organizational and structural activities, i.e. on the preparation of plans and technical documents. The construction of several new irrigation systems is expected to start in the second stage of the program (2008). Only with the realization of this project it is possible to create preconditions for competitiveness and efficiency of Croatian agriculture on the EU market.
Annex:

Neretva and Trebišnjica River Basin Management Project (NTRB)

The Regional Integrated Ecosystem Management of the Neretva and Trebišnjica River Basin Project (NTRB) had developed from the action plans of Bosnia and Herzegovina and Croatia (NEAP) identifying the need for interstate cooperation in water management and environmental management, with the management of water resources as top environmental priority.

Bosnia and Herzegovina (BiH) and the Republic of Croatia received a grant for the preparation of the above-mentioned project from the Global Environment Facility (GEF) in the amount of USD 432,000. The Grant Agreement between the Republic of Croatia and the World Bank, in the capacity of Implementing Unit for GEF, in the amount of USD 145,000 was signed on December 19, 2003 and August 31, 2005 was set as the Grant closing date, but was extended to February 28, 2006 at the request of the both countries.

Pursuant to that Agreement, the Project Implementation Unit was supposed to be established within the then Ministry of Environmental Protection and Physical Planning. In view of the changes that had taken place in the organization of ministries of the Republic of Croatia, the Ministry of Environmental Protection, Physical Planning and Construction had given its consent on March 19, 2004 to the proposal of the authorized representative of the IBRD that Hrvatske vode, as a legal entity for water management, take over the role of the implementing agency for the preparation of a part of the Project. At a meeting held on September 14, 2004 in the Ministry of Finance between the representatives of the Ministry of Finance, the Ministry of Environmental Protection, Physical Planning and Construction, the Ministry of Culture, the Ministry of Agriculture, Forestry and Water Management, Hrvatske vode, and the World Bank it was agreed on the activities that had to be carried out in order for Hrvatske vode to assume the said role. The Sub-grant Agreement was signed between the Ministry of Finance, the Ministry of Environmental Protection, Physical Planning and Construction and Hrvatske vode on 23 December 2004, by means of which the status of Grant beneficiary was transferred to Hrvatske vode.

In November 2005, the Ministry of Environmental Protection, Physical Planning and Construction, the Ministry of Culture, the Ministry of Agriculture, Forestry and Water Management, and Hrvatske vode nominated members of the so called “Steering Committee”, the Technical Working Group, and the Committee for the Implementation of Procurement Procedure.

Pursuant to the Grant Agreement, the Republic of Croatia carried out the service procurement procedure for the preparation of study #1 “Transboundary Assessment of the Water Dependent Ecosystems and Water Resource Management in the Neretva and Trebišnjica River Basins”. A joint bid submitted by Elektroprojekt d.d. firm, Zagreb and experts from the Faculty of Science of the University of Zagreb was selected. The deadline for its preparation was June 30, 2005.

The preparation of the remaining studies was the task of the Federation of Bosnia and Herzegovina (FBiH) and the Republic of Srpska, and was distributed as follows:

Study #2 “Assessment of Water and Land Resource Management in the Neretva and Trebišnjica River Basin” (FBiH),
Study #3 “Tentative Economic Assessment of Water Resource Use in the Neretva and Trebišnjica River Basin” (RS),
Study #4 “Social and Rural Assessment of Integral Ecosystem Management of the Neretva and Trebišnjica River Basin” (FBiH),
Study #5 “Environmental Impact Assessment” (RS),
Study #6 “Project Design and Documents” (FBiH)

For each individual study consultants have proposed lists of projects, which were used by the consultant engaged in study #6 for the preparation of a final proposal of project solutions and project approval document, in accordance with GEF criteria and guidelines for the preparation of World Bank projects.
It is expected that GEF will provide USD 8 million of the proposed NTRB Project, ca. USD 6 million will go to
Bosnia and Herzegovina and ca. USD 2 million to Croatia. Each of these two countries would co-finance the project
with their own funds, Bosnia and Herzegovina with USD 2 million, and Croatia with USD 3 million. The
components proposed for financing are the following:

1. Improvement of trans-boundary water resource management,
2. Improvement of management and use of wetland ecosystems,
3. High-priority investments in water pollution control, and
4. Public participation and project management.

The preparation of the final version of PAD (Project Appraisal Document) is under way, as well as the preparation
Part IV

Country Papers (in Local Languages)
Schimb De Experiență Privind Asociațiile Utilizatorilor De Apă
Raport de țară – România

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Introducere

România are o suprafață de 238.391 km² și este situată în partea de sud-est a Europei Centrale, 46° latitudine nordică și 25° longitudine estică și este marginită în partea de sud-vest și la sud de fluviul Dunărea. Datorită amplasării sale România are o climă continentală.

Prin comparație cu celelalte țări situate în bazinul Dunării, România acoperă cea mai mare parte din aria geografică a Dunării, 29% din această arie și 38% din lungimea cursului Dunării (Vala Dunării, 2004, pagina 531). 98% din râurile ce fac parte din rețeaua geografică a României se varsă în fluviul Dunărea. Relieful, climatul, vegetația și tipurile de sol sunt dispuse în mod concentric în jurul Podișului Transilvaniei.

Suprafața agricolă a României este de 14.852,3 mii ha, ceea ce înseamnă 62,02% din suprafața totală, adică, în medie 0,65 ha/locuitor. Suprafața arabilă constituie 39,19% din suprafața țării, ceea ce înseamnă, în medie 0,41 ha/locuitor (Anuarul statistic, 2002).

Suprafața arabilă reprezintă 63,4% din totalul suprafeței agricole, suprafața cultivată permanent reprezintă 3,1%, iar suprafața acoperită de pășuni reprezintă 33,5%. (Raportul de țară pentru România al CE, 2002).

În anul 2000, populația României numara 22,4 milioane de locuitori, ceea ce înseamnă o densitate medie a populației de 94,1 locuitori/km², densitate care este sub media țărilor Comunității Europene (CE). Aproximativ 4,9 milioane de locuitori lucrează în agricultură, amenajă piscicole și silviceulture reprezentând 42,8% din totalul forței de muncă.

Datorită poziționării sale geografice și reliefului, solului și condițiilor climaterice, teritoriul României este expus hazardelor naturale, ce apar sub diferite forme în spațiu și timp. Pot fi generate efecte cumulate care au ca rezultat diferite forme de pagube, de la pagube minore până la adevărate dezastre.

Astfel, în timp ce hazardele geologice duc la eroziunea solului, alunecări de teren, inundări locale, iar cele hidrologice duc la inundarea câmpiilor, excesul de umiditate a solului, eroziunea malurilor râurilor, hazardele climatice generează secetă, exces de umiditate în zonele joase, inundării și eroziunea eoliană.

Principalele resurse de apă ale României sunt:
- Ape de suprafață:
  - Ape curgătoare – Dunărea, râuri interioare;
  - Ape stătătoare - lacuri naturale, lacuri artificiale;
- Ape subterane:
  - Ape freatiche (din zona secetoeasă, subumedă și umedă);
  - Ape de adâncime (carpatice, de depresiuni intracarpatice și vai).

România este în general săracă în resurse de apă, având disponibil numai 1870 m³/locuitor/an, comparativ cu media europeană de cantitate de apă disponibilă, care este de 4000 m³/locuitor/an.
În România, sectorul care are cele mai mari nevoi de apă și cel mai mare consum este sectorul industrial. Următoarele, în ordine descrescătoare, sunt agricultura și populația.

Rolul agriculturii

Agricultura ocupă prin tradiție un loc important în structura economiei românești. Solurile sunt fertile și pretabile pentru o agricultură performantă, dar există și mari suprafețe de soluri acide, erodate, slab aprovizionate cu azot, fosfor și puternic înburuienete.
Frecvența mare a anilor secetoși și cu temperaturi extreme face ca producțiile potențiale să fie semnificativ mai mici decât în vestul Europei.


În anul 1998, aportul din agricultură s-a cifrat la 9,7 miliarde EURO din care 54,4% de la culturile agricole, 43,9% din sectorul zootehnic și 1,7% din servicii în agricultură (EC. Country Report of Romania, 2002).

Cele mai importante producții agricole provin din cultura cerealelor (în special porumb), legumelor, cartofilor și din fructe. Cerealele acoperă mai mult de 60% din suprafața cultivată.

Măsurile de reformă aplicate în agricultură după anul 1990 (reestabilirea dreptului de proprietate asupra terenurilor, liberalizarea prețurilor și regimului comercial cu produse alimentare, privatizarea, lichidarea și restructurarea unităților agricole, reforma instituțională, reforma susținerii financiare) au avut ca obiectiv principal macrostabilizarea economică națională.

Politici agricole

Agricultura României a avut și continuă să aibă un rol semnificativ în structura economiei naționale și în formarea unui sistem economic orientat spre piață. Agricultura a fost o sursă de angajare pentru alte ramuri economice înainte de 1989 și a susținut impactul violent al reorganizării și privatizării industrii după 1989.

Agricultura a fost luată în considerare în principal în cadrul programelor și politicii aplicate de guvermările de după 1989, dar măsurile luate nu au susținut în întregime și în mod corespunzător nevoile de schimbare.

Structura proprietății terenurilor în agricultura română a devenit în cea mai mare parte privată, reforma fiind finalizată. Sectorul privat deține peste 85% din suprafața agricolă, aprox. 90% din sectorul de creștere a animalelor și un mare număr de tractoare și mașini agricole.

Tendința principală în cadrul evoluției structurilor exploatațiilor agricole este creșterea dimensiunilor acestora prin promovarea politicii care vizează:
- stoparea divizării terenurilor între succesori și stabilirea parcelelor comerciale la o suprafață de 2-3 hectare;
- stabilirea taxei pe venituri din agricultură;
- ajustarea fiscală cu privire la mediul agricol ecologic.

Tranzitia către economia de piață

Construirea unei economii de piață moderne în România este dificilă fără a avea niște modele internaționale de tranziție de la socialism la capitalism. Unele din mecanismele politicii agricole au fost adaptate după modelele țărilor dezvoltate, dar măsurile nu au avut rezultate așteptate.

Anul 1990 semnificativ începutul tranzitiei la o economie de piață și al unei continue schimbări ale sectorului agricol. Măsurile legislative și instituționale, aplicate în primele faze, au avut efecte fie prea violente fie prea lente sau nu au determinat progrese către economia de piață după cum se aștepta.

O parte esențială și pozitivă a schimbărilor din agricultură românească în ultimii 15 ani o constituie înregistrarea terenurilor și practicarea unei agriculturi orientate spre economia de piață.

Comisia europeană a aprobat Planul Național pentru Agricultură și Dezvoltare Rurală în anul 2002. Printre măsurile principale privind orientarea pieței pentru produsele agricole pentru a asigura o piață funcțională, putem menționa:
- creșterea suprafețelor irrigate prin reabilitarea sistemelor de irigații;
- producția înaintă competitivitate;
- asigurarea consumului național;
- dezvoltarea comerțului în gros;
extinderea producării agricole ecologice. Legea nr. 73/2002 privind organizarea și funcționarea pieței agricole asigură un cadru legal pentru stabilirea și funcționarea piețelor naționale bazate pe aceste produse.

Proprietatea terenurilor

În timpul perioadei socialiste, cooperativele agricole controlau 64,8% din suprafața agricolă și 78,9% din suprafața arabilă. În aceeași perioadă 882 mii de familii din zonele deluroase și de munte și care dețineau 6% din suprafața agricolă  și 3% din suprafața arabilă, nu au fost incluse în cooperative. Fiecare familie de membri cooperatori avea voie să cultive produse pentru consumul propriu pe un lot de 0,3 ha, cu condiția să participe la activitatea cooperativei.

În 1990, în conformitate cu Decretul nr. 42, dreptul de proprietate a fost reconsiderat prin creșterea suprafeței individuale de la 0,3 ha la 0,5 ha. Astfel, suprafață totală sub proprietate individuală a crescut la 2,7 milioane ha (28,6% din suprafața agricolă).

În 1991 a fost promulgată Legea funciară nr.18 care a legiferat schimbări fundamentale și positive cu privire la proprietatea terenurilor și a proprietății bunurilor rurale. În continuare, această lege a fost modificată și completată prin Legile nr. 169/1997 și nr. 1/2000.

Reforma funciară conduce la 3 tipuri de proprietate: domeniul public al statului, domeniul privat al statului și domeniul privat.

Domeniul public al statului poate fi de importanță națională sau locală. În cel de-al doilea caz, controlul proprietății îl dețin consiliile administrative ale comelor, orașelor sau județelor.

Domeniul public al statului include și zonele acoperite de amenajări de îmbunătățiri funciare care includ canale mari de irigații, sisteme de desecare, amenajările de combatere a eroziunii solului, digurile de protecție împotriva inundațiilor.

Domeniul privat al statului cuprinde terenurile care sunt, în special în folosința societăților comerciale agricole cu capital de stat și unităților de cercetare din domeniul agricol.

Domeniul privat este format din terenurile aparținând persoanelor fizice și juridice private și reprezintă, în prezent, partea cea mai mare a terenurilor agricole și arabile.

Practici agricole

Parcelele mici detinute de catre agricultorii individuali precum și cunoștințele tehnice precare ale acestora conduc la practicarea unei agriculturi fără a tine seama de rotația culturilor și de utilizarea unor tehnologii agricole adecvate și din cauza lipsei dotării tehnice.

În cazul micilor proprietari, majoritatea lucrărilor agricole se face preponderent manual sau cu utilaje cu tracțiune animală.

În structura culturilor predomină cerealele păioase și porumbul.

Suprafețele cultivate anual se reduc anual, multe suprafețe nefiind luate în cultura datorita dezinteresului sau lipsiei resurselor financiare.

Folosirea îngrășămintelor chimice s-a restrâns mult, iar dintre îngrășăminte cu azot, ponderea cea mai mare o deține azotatul de amoniu. Gunoiul de grajd nu este valorificat corespunzător.
În zonele deluroase, mulți proprietari de terenuri au terenurile amplasate și execută arăturile perpendiculare pe curba de nivel, ceea ce determină deteriorarea solului prin eroziune.

În ultimii ani se constată o tendință pozitivă de creștere a suprafeței exploatațiilor agricole, de dezvoltarea unor ferme moderne, de apariția unor agenții economici în agricultură care investesc capitaluri importante pentru procurarea de echipamente, utilaje, semințe, și care promovează tehnologiile moderne și angajăază personal calificat.

Organizațiile de agricultori

Progresului structurilor agricole (proprietate, exploatare, producție și marketing) în perioada de tranziție și în prezent scoate în evidență necesitatea continuării și accelerării reformelor pentru modernizarea și eficientizarea agriculturii. Printre modalitățile de organizare a organizațiilor agricole se disting următoarele:

- exploatari agricole familiale, asociate printr-un sistem variat de servicii și cooperative de marketing;
- exploatari agricole formate prin asocierea micilor proprietari de terenuri;
- mari ferme comerciale agricole și companii comerciale (holdinguri) fondate ca rezultat al procesului de privatizare, arendării, vânzării și cumpărării.


Structurile române mai sus menționate sunt în conformitate cu structurile cerute de standardele Uniunii Europene. Structurile productive nu asigură fosolina rațională a terenurilor și practicarea unei piețe agricole funcționale datorită unui nivel scăzut al exploatarilor agricole față de cerințele pietei.

Nivelul scăzut al productivității agricole este corelat cu slaba calificare a forței de muncă, salariile nesatisfacatoare și nivelul slab de mecanizare și acoperire cu forța de muncă.

Mărima unei unități agricole este determinată de resursele sale, de folosirea tehnologiilor în procesul de producție și de rezultatele obținute, bineînțeles. Mărimea unității agricole este influențată într-o mare măsura de forma de proprietate.

**Rolul agriculturii irigate**

Regimul climatic al României este caracterizat între altele și prin secete, uneori foarte severe, care au marcat consecințe dezastroase asupra recoltelor culturilor agricole. Studiile au pus în evidență că anii secetoși și foarte secetoși sunt în proporție de 70-75% iar cei ploioși și foarte ploioși în proporție de 25-30%. (Grumeza, 2002).

Datorită climatului semi-ărid, majoritatea suprafețelor cultivate suferă din cauza secetei iar recoltele sunt incerte.

**Cererea de apă de irigații**

Cererea netă de apă de irigații, luând în considerare probabilitatea de 50% și 80% pentru un plan de cultură mediu, în zonele irigate reprezentative (Câmpia Română și Dobrogea) este între 150 și 300 mm (50%) și 250 și 400 mm (probabilitate 80%).

**Sursa apei de irigații**

Sursa principală de apă pentru irigații este fluviul Dunărea cu afluenții săi, Oltul, Argeșul, Siretul, Mureșul și Prutul. Având în vedere estimările actuale, fluviul Dunărea furnizează apă pentru irigații pentru aproximativ 75% din suprafața totală irigată; cea mai mare parte a acestei suprafețe este situate pe terase de-a lungul fluviului. În unele cazuri, sistemele de irigații sunt situate la o altitudine de peste 150 de metri față de nivelul sursei de apă și, de aceea, consumul de energiei electrice pentru pomparea apei este foarte ridicat.
### Infrastructura de irigații

Datorită condițiilor climatice și pentru scăderea riscului secetei, între anii 1965 și 1989 a fost amenajată pentru irigații o suprafața de peste 3,0 milioane ha (Harta nr.1). În proiectarea și execuția sistemelor de irigații s-a luat în calcul caracteristica agriculturii socialiste organizate în ferme de mari dimensiuni și cu administrare și management centralizate.

**Evoluția suprafețelor amenajate pentru irigații a fost spectaculoasă, progresul se prezintă în continuare (mii hectare):**

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</thead>
<tbody>
<tr>
<td>Suprafața irigații</td>
<td>18,0</td>
<td>42,5</td>
<td>199,6</td>
<td>731,3</td>
<td>1474,2</td>
<td>2301,0</td>
<td>2965,3</td>
<td>3168,7</td>
<td>3205,2</td>
<td>3177,2</td>
</tr>
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În primele faze de execuție a amenajărilor de irigații, soluțiile tehnice adoptate au fost de tip clasic. Ele includeau transportarea apei prin canale deschise și neimpermeabilizate și furnizarea apei de irigații folosind canale și brazde de pământ.

După anul 1970 au fost proiectate și executate amenajări de irigații cu aducționarea formată din stații de bază și de repompare și canale de aducțiune și de distribuție a apei (canale total sau parțial câptușite) și amenajări interioare, în principal formate din stații de punere sub presiune și rețea de conducte subterane prevăzute cu hidranți pentru alimentarea echipamentelor de udare mobile.

În general, în cadrul amenajărilor de irigații se întâlnesc trei terase ale Dunării sau raurilor interioare. Apa este distribuită la prima terasă prin un canal de alimentare din pământ, gravitațional după ce stația de pompă de bază prelevează apa din Dunăre (sau afluenții săi). O stație de repompare ridică apa pe prima terasă. Stațiile de punere sub presiune (SPP), amplasate pe canalele distribuitoare și rețea de conducte îngropate conduc apa la hidrant, de unde, prin echipamentele de udare apa este distribuită plantelor. Terasele superioare sunt alimentate de stații de repompare succesive amplasate pe canalul de alimentare principal. De la priza de apă și până la cea mai înaltă terasă diferența de nivel poate atinge valori de pana la 200m, înălțimea de pompare inclusiv SPP putând depăși valori de 270m.

Canalele din rețelele de transport a apei sunt căptușite cu dale de beton pe aproximativ 1/3 din lungimea lor totală. Principalele caracteristici ale sistemelor de irigații din România sunt următoarele:

- densitatea medie a rețelei de conducte îngropate – 18,5 m/ha;
- eficiența pompării apei – 50-70%);
- înălțimea suprafețelor cerute pentru irigare față de sursa de apă – în mod frecvent între 20 și 100 m și în mod excepțional peste 150 m;
- debitmetre instalate în rețea de furnizare – foarte puține;
- tipul echipamentelor de irigație folosite – în principal manuale, și în câteva cazuri echipamente mecanizate automate care funcționează la presiune medie și înaltă (2,5-4,5 atmosfere) și cu o intensitate de udare de 6-9 mm/oră.

**Metode de irigare**

Sistemele de irigații construite în perioada 1950 – 1989 au fost proiectate pentru a iriga în principal culturile de porumb, grâu, floarea-soarelui și sféclă de zahăr. În primii ani, irigațiile s-au făcut prin brazde. După aceea, folosirea aspersiunii a fost extinsă și, în prezent, este cea mai folosită metodă de irigare (peste 80%).
Harta nr. 1. Suprafata amenajata pentru irigatii
Apă este pompată în conducte subterane folosind, în principal, soluții tehnice cum ar fi:
- stații de punere sub presiune (SPP), care funcționează la presiuni de 3-8 atmosfere și deservesc suprafețe (ploturi de irigații) între 400 și 3000 ha; suprafața totală este de 2,1 milioane de ha;
- unități de pompare monofilare acționate de motoare electrice sau termice care deservesc o suprafață totală de aprox. 0,3 milioane ha;
- unități de pompare acționate de motoare termice mobile, care iau apă direct din canale și o pompează în conductele îngropate, deservind o suprafață totală de aprox. 0,1 milioane ha.

O mare parte a terenurilor irigate este situată pe terase cu înalțiimi de pompare de peste 50 metri peste nivelul Dunării. De aceea, cantitatea de energie electrică necesară pentru pompare este considerabilă, și aceasta necesită o folosire eficientă a apei. Consumul anual de energie electrică, după 1980, ajunge la aprox. 2,5 milioane MWh.

**Reformă sectorului de irigații**

**Necesitatea reformei sectorului de irigații**

Înainte de 1989 statul nu a făcut publice sumele acordate de la buget pentru amenajările de irigații; în special prețurile sub costurile reale ale electricității au ascuns natura non-viabilă a irigațiilor în terasele înalte. Greutățile financiare au început să fie resimțite spre sfârșitul erei socialiste, astfel încât chiar și înainte de 1989 sistemele mai vechi nu au mai fost reabilitate sau întreținute corespunzător. De atunci, în principal datorită alocărilor mici de la buget și a procentajelor mici din costuri recuperate de la utilizatori, întreținerea a fost redusă și sistemele s-au degradat în mod continuu.

În perioada 1992 - 1994 a fost realizat Studiul de Irigații și Desezcare (IDS), finanțat dintr-un împrumut de la Banca Mondiala care a aratat în mod clar faptul că irigațiile nu sunt viabile economic în terasele înalte, chiar și în cazul relansării agriculturii, și trebuie întrerupte pentru a stopa risipa de resurse. În conformitate cu concluziile studiului, aproximativ 50% din suprafața totală amenajată pentru irigații (3,2 milioane ha) este ne-economică, chiar dacă aceste sisteme ar fi reabilitate și structura culturilor ar fi compusă, în întregime, din cele mai rentabile culturi (Fig. 1). Vechiul sistem de prețuri pentru irigații (la nivelul lui 1994) obișnua să transfere aproape toate cheltuielile și toate riscurile la bugetul de stat și nu prevedea nici un stimulent pentru dezvoltarea unui sector de irigații viabil. Tarifele uniforme și subvențiile variabile, existente la acel moment, împiedicau concentrarea pe zonele unde irigațiile sunt economice.

**Fig. 1.Viabilitatea economica a suprafețele amenajate pentru irigații**

Principalele motive pentru restructurarea sectorului de irigații erau:
- aranjamentele instituționale permise, încă existente în sectorul de irigații la acea vreme, erau concepute pentru a deservi fermele mari de stat și cooperativele într-o economie centralizată de
aceea necesită restructurare fundamentală pentru a le transforma în instituții similare cu cele existente în UE, caracterizate de responsabilitate sporită, transparentă, flexibilitate și orientare către client.

- Agenția guvernementală de administrare a amenajărilor de irigații (RAIF și mai apoi SNIF S.A.) nu mai era capabilă să asigure nivelul cerut de lucrări de întreținere și exploatare a infrastructurii de irigații principale existente și din amenajările interioare datorită scăderii continue a fondurilor de la buget. Presiunea financiară asupra bugetului statului creștea în fiecare an.
- Deprecierea continuă a infrastructurii după 1990 a condus la scăderea parametrilor de eficiență referitor la performanța amenajărilor cu o influență asupra creșterii prețurilor apei și a reducerii eficienței economice.
- Fenomenul de distrugere și vandalism (acțiuni de vandalism asupra stațiilor de punere sub presiune, transformaților electrice, echipamentului de udare) a crescut în intensitate, uneori cu aportul beneficiarilor. În aceste condiții, supravegherea lucrărilor nu mai putea fi efectiv garantată de agenția guvernementală.
- Interesul agricultorilor asupra irigațiilor și a cererii de apă a scăzut în fiecare an datorită reducerii veniturilor și oportunităților financiare ale acestora, vânzării dificile a produselor agricole pe piața internă și externă. Există terenuri lăsate în paragină în zonele amenajate pentru irigații ceea ce contribuie la scăderea cererii de irigații.

### Caracteristici principale ale reformei în sectorul de irigații

Guvernul s-a angajat să reformeze sectorul de irigații, cu politici cheie, care includ restructurarea agențiilor guvernamentale responsabile cu administrarea infrastructurii de irigații, transferul administrației amenajărilor interioare către agricultorii organizații în OUAI, direcționarea subvențiilor de stat pentru irigații cu schimbarea destinației de la furnizorul de servicii direct la utilizatorii și reabilitarea sistemelor de irigații viabile economic. Alții factori importanți în restructurarea sectorului de irigații sunt recunoașterea faptului că anumite sisteme (și/sau părți din sistem) ce deservesc terasele înalte nu sunt viabile economic și trebuie excluse de la irigare pentru a reduce fondurile alocate de la bugetul de stat și necesitatea reabilitării în așa fel încât să se realizeze servicii de irigații de calitate și eficiente până la ultimul utilizator.

Reforma sectorului se bazează pe următoarele principii:

- Îmbunătătirea eficienței irigațiilor prin constituirea de organizații de utilizatori de apă pentru irigații (OUAI) care au dreptul să preia proprietatea asupra infrastructurii terțiere de irigații (din amenajarea interioară), la cerere, și să o administreze (sunt responsabili inclusiv cu întreținerea și exploatarea ei) în beneficiul membrilor săi și al altor agricultori în cadrul teritoriului lor.
- Utilizatorii plăteșc tarifele de irigații, care ar trebui să replateze costurile reale a acestor servicii; tariful anual trebuie să includă costul întreținerii infrastructurii ca să poată asigura utilizarea în siguranță în sezonul de irigații; tariful de livrare trebuie să includă costurile reale de distribuție a apei până la punctul de livrare.
- Reforma sistemului de subvenționare care să introducă stimulele economice, să descurajeze agricultorii să practice irigații în zone nevăzute economic și să încurajeze concentrarea irigațiilor în special în zone viabil economic.
- Restructurarea instituțiilor statului și separarea administrației irigațiilor de alte activități de îmbunătățiri funciare; contractarea cu terți furnizor a lucrărilor de întreținere și reparații va permite competiție în acordarea contractelor și va consoloda sectorul privat.
- Reabilitarea infrastructurii de irigații deteriorate, inclusiv procurarea de echipament de udare, în amenajari recunoscute ca viabile economice și unde agricultorii sunt interesați în constituirea de OUAI și utilizarea intensivă a infrastructurii de irigații.

### Acițiuni preliminare pentru constituirea AUAI în România

Procesul constituirii și dezvoltării AUAI a fost sprijinit puternic prin mai multe proiecte de asistență tehnică pe o perioadă de mai mult de 5 ani.

La seminarul național INPIM din anul 1996, care s-a ținut în Antalya – Turkey, având ca subiect „Managementul Participativ în Irigații” România a participat și a recomandat un Plan de Acițiuni clar și concis cuprinzând următoarele idei:

1. Obiectivele programului „Managementul Participativ în Irigații”
2. Activități ce vor fi transferate:
   - livrarea apei de irigații în câmp
De la începutul anului 1999 până la încununat de succes. Agricultori, propri etari ai terenurilor agricole situate în cadrul a patru sisteme de irigață.

În 1997, a fost realizat un studiu administrat de Banca Mondială pentru îmbunătățiri Funciare. Proiectul a fost încununat de succes. Agricultorii, proprietari ai terenurilor agricole situate în cadrul a patru sisteme de irigaţii diferite şi-au arătat interesul pentru preluarea în responsabilitatea lor a managementului infrastructurii terţiere. De la începutul anului 1999 până în martie 2000, a fost executat un alt studiu, finanţat de Guvernul Olandei, ale cărui principale obiective au fost stabilirea cadrului legislativ pentru AUAI. Prin acest studiu, s-a pregătit baza legislativă, dar din păcate nu s-au făcut precizări privind mărimea şi amplasarea teritoriilor AUAI.

**Cadru legal pentru constituirea AUAI şi Transferul de management al Irigaţiilor**

Prin studiul realizat în 1999 s-a pregătit baza legislativă, respectiv Ordonanţa de Urgenţă nr. 147 privind AUAI, aprobată în 2001 ca Legea nr. 573. Odată ce cadrul legal a fost realizat s-a iniţiat Oficiul de Reglementare în cadrul ministerului agriculturii iar agricultorii au început să facă demersurile în vederea constituirii AUAI astfel incât la primul trimestru al anului 2000 erau constituite 4 AUAI care au fost înregistrate în Registrul National în cadrul ministerului agriculturii. Prevederile legale cuprinse în OuG 147/1999 oferă informații despre conținutul minim al statutului dar nu făce referire la sistemul de prezentare, ca urmare conducătorii AUAI puteau reprezenta o zona specifică de AUAI și nu întreg teritoriul. Statutele autentificate de un notar public trebuie aprobate de tribunul județean care adesea nu era informat privind cadrul legal specific activității de îmbunătățiri funciare, respectiv constituirea de asociații de utilizatori de apă pentru irigații. Mecanismul de subvenții permite te utilizatorilor de apă pentru irigații organizații în AUAI să solicite subvenții pentru acoperirea costurilor cu energia electrică și costurile de înținere și exploatare în partea terțiară a sistemului fără să fie prevederi similare sistemului din UE. Activitățile pe care o AUAI putea să le dezvolte erau limitate deoarece acestea erau beneficiarele sprijinului de la bugetul de stat iar dacă ar fi avut acces și la alte activități profitabile cu ușurință ar fi renunțat la irigație. AUAI erau considerate cu statut juridic dar non profit.

Cum reforma de sector a trebuit să reglementeze atât pentru furnizorul de apă cât și pentru utilizatorii a fost considerată o oportunitate să se realizeze unele completari/modificări în baza experienței dobândite în cei 5 ani. Astfel, în perioada 2002-2004 a fost elaborat un nou cadrul legal privind sectorul de îmbunatatiri funciare (Legea nr.138/2004 a îmbunatatirilor funciare și legislația secundara).
Schimbări în cadrul legal

a. Asociații de utilizatori de apă

- Separarea personalului de conducere de cel de execuție pentru evitarea corupției și delimitarea clara a sarcinilor.
- Teritoriul AUAI să fie alimentat dintr-o singură sursă de apă
- Membrii WUA să fie atât proprietari de teren cat si cat si utilizatori de teren (arendası, asociații agricole, etc.).
- Simplificarea procedurilor de înființare.
- Permiterea OAUI sa se asociieze în Federatii care sa administreze infrastructura principală de irigații dintr-un sistem de irigații sau parte de sistem funcțională autonom.
- Permiterea beneficiarilor să se asocieze pentru derularea și a altor activității de îmbunătățiri funciare decat irigații: desecare, combaterea eroziunii solului și protectia impotriva inundațiilor.

b. Instituții guvernamentale

- Restructurarea Societății Naționale "Îmbunătățiri Funciare" (SNIF), astfel încât noua administrație, Administratia Nationala a Îmbunatatirilor Funciare, să fie concentrată numai pe activități de îmbunătățiri funciare si externalizarea activității de întretinere si reparatii care vor fi contractate, prin competiție, cu operatori privați de specialitate.
- Implementarea și dezvoltarea unui parteneriat stabil, democratic și transparent între beneficiarii și administratorul amenajărilor de îmbunătățiri funciare de utilitate publică.
- Relațiile între furnizorul și beneficiarii serviciilor de îmbunătățiri funciare
  - la nivelul subunităților ANIF (unități de administrare și sucursale) sunt organizate consiliile de supraveghere, care includ reprezentanți ai beneficiarilor, ale căror responsabilități sunt de a verifica activitatea ANIF din punctul de vedere al costului și calității serviciilor, și din cel al programării activităților specifice.
  - publicarea tarifelor de irigații (discutate și semnate de consiliile de supraveghere) în Monitorul Oficial.
- Relațiile dintre OAUI și membrii lor
  - Adunarea Generală este autoritatea supremă a OAUI.

Figura nr. 2 prezinta relațiile dintre instituțiile implicate în sectorul de irigații.
Figura nr.2. Instituțiile implicate în activitatea de irigatii – Rol și interrelații

**ANIF**
- Administrarea infrastructurii principale
- Furnizarea apei către OUAI
- Contractarea prestărilor de servicii de irigatii cu OUAI
- Contractarea lucrărilor de I+R cu SNIF sau alte societăți de profil
- Raportări către Directia de profil din MADR.

**OUAI**
- Managementul infrastructurii amenajarii interioare de irigatii
- Lucrări de I + R la infrastructure amenajarii interioare
- Contractarea serviciilor de irigatii cu ANIF
- Plata către ANIF a tarifulor de servicii de irigatie
- Raportări către Oficiul de Reglementare a OUAI privind aspectele organizatorice și tehnice
- Solicitare de subventii la DADR

**SNIF**
- Execută lucrări de I+R pentru ANIF și OUAI

**Oficiul de Reglementare a OUAI**
- Verificarea documentației și aprobarea infrastructurii OUAI
- Furnizează consultanța OUAI
- Emite reglementari privind activitatea OUAI
- Monitorizează și evalează performanța OUAI

**DADR**
- Verifica documentele, aproba și aloca subventiile pentru irigatii
c. Mecanism nou de tarifare si subventionare

Sistemul avea multe deficiențe, cu toate consecințele legate de costurile și riscurile transferate bugetului statului. În același timp, mecanismul de prețuri și subvenții nu conținea un mecanism care să conducă la o raționalizare a sectorului și la economii de cost. Se cerea o reformă a politicilor care să conducă dezvoltarea sectorului în direcția corespunzătoare (Fig.3).

![Figura 3. Subventii pentru irrigații](anterior anului 2004)

**Figura 3. Subventii pentru irrigații**

![](anterior anului 2004)

**Cost total**

**Subventii**

- Costul efectiv de furnizare va fi plătit de către utilizatori. Conform noii legi, ANIF este obligat să perceapă de la utilizatori costul efectiv de livrare a apei de irigații. Acesta variază de la SPP la SPP și de la sistem la sistem, și constituie unul din stimulentele prin care irigațiile vor fi concentrate în zonele economice.

**Figura 4. Recuperarea costurilor irigatiei**

- Este nevoie de contracte de servicii pe termen lung. OUAI trebuie să încheie contracte de servicii pe termen lung, în așa fel încât ANIF să-și poată planifica în mod corespunzător funcționarea, în special ce părți de amenajări vor fi menținute în stare de funcționare. Contractul pe termen lung este o
înțelegere între OUAI și ANIF prin care ANIF se obligă să efectueze reparații în infrastructura principală pentru a furniza apa către un anumit SPP. OUAI se obligă să platească o taxă anuală care va acoperi în mare parte infrastructura necesară pentru furnizarea apei pentru un anumit SPP. ANIF se obligă să efectueze reparații în infrastructura principală pentru a furniza apă pentru un anumit SPP. OUAI se obligă să plătească o taxă anuală care va acoperi în mare parte cheltuielile ANIF necesare pentru furnizarea apei pentru un anumit SPP. Cea mai mare parte a cheltuielilor ANIF necesare pentru furnizarea apei pentru un anumit SPP este acoperită prin plata unei taxe anuale care se stabilește în funcție de suprafața care este furnizată apă pentru un anumit SPP. Contractul pe termen lung este actualizat în fiecare an, dând astfel ANIF certitudinea că înțelegerea acelei amenajări este justificată.

**Prețul apei are o componentă fixă și una variabilă.** Conform contractului pe termen lung OUAI se obligă să platească două tipuri de tarife pentru servicii: i) tarif fix anual stabilit în funcție de suprafața furnizată de un anumit SPP, pentru a acoperi costurile de întreținere și ii) tarife volumetrice pentru apă consumată necesară pentru a acoperi costurile variabile ale ANIF, în principal cu electricitatea.

**e. Subvențiile pentru irigatii**

Noul mecanism de acordare a subvențiilor este total diferit de vechiul sistem și are trei caracteristici principale:

- **Subvențiile nu mai sunt un sprijin de la stat ce se acordă Agentiei Guvernamentale ci sunt un sprijin acordat direct utilizatorilor.** Prin autorizarea utilizatorilor la primirea subvențiilor, ridicând nivelul conștientizării și considerând această o metodă transparentă și corespunzătoare a utilizatorilor acestea pot contribui la realizarea obiectivelor strategiei de sector.

- **Subvențiile reprezintă o valoare unică la hectar la nivel de întreaga țară.** Agricultorii, care au suprafete situate la înălțimi mari de pompare a apei de irigatii, sau au teritoriile in zone unde este înregistrată o cerere mică de apă pentru irigatii vor realiza că, cuantumul de plată pentru irigatii este semnificativ mai mare, ceea ce va descuraja aplicarea irigatii în acele zone, și va contribui la concentrarea irigatii către zone economice.

- **Subvențiile pot fi utilizate numai după ce utilizatorii (OUAI) plătesc contribuția la tariful anual.** Aceasta va sprijini ANIF-ul în identificarea locației și a volumului de lucrări și de asemenea va asigura că irigatia este folosită în condiții economice. Subvenția este acordată numai prin OUAI și numai pentru acele SPP-uri cuprinse în contractul multianual. Subvenția acoperă parte din amândouă tarifele și fix și variabil. Acesta este motivația principală și sprijinul acordat pentru dezvoltarea OUAI.

**Consecintele noului cadru legal**

Desi noul cadru legal a intrat in vigoare destul de recent (2004), au rezultat tendinte pozitive în sectorul de irigatii:

- Din unele AUAI prin procesul de reorganizare s-au înfiintat mai multe OUAI prin aplicarea principiului de a fi alimentate dintr-o singură sursă de apa;
- Prin procesul de reorganizare au fost exclude suprafete unde nu este cerinta de apa de irigatie;
- Structura membrilor s-a schimbat: membrii sunt in special societăți comerciale;
- S-a constatat o orientare, desi timidă, spre culturi valoroase, în defavoarea celor traditionale (grau, porumb);
- Majoritatea OUAI s-au înfiintat în zone cu tradiție pentru irigatii și cu risc ridicat de seceta.
- Resursele financiare, inclusiv subvențiile, s-au dirijat spre zonele cu cerinte de apa de irigatii. Ca urmare, s-a constatat o scadere a volumului de subventii (Figura 5).
Subvendii în irrigation pe ha irrigat și 1000 mc apa livrata

Procedura și structura de constituire

i) Constituire

Pe bază de voluntariat. Procedura de constituire: un comitet de inițiativa, compus din mai mulți membri potențiali, în general agricultori interesați de irigatie, convoacă o sedință preliminară pentru a decide delimitarea teritoriului OUAI și numește persoana responsabilă pentru a redacta statutul și pentru a face pașii necesari pentru constituire. După aceea, comitetul de inițiativă convoacă o adunare generală de constituire, pentru a dezbate și aproba statutul. În cadrul acestei ședințe se vor alege de asemenea membrii consiliului administrație și comitetul de audit. Deciziile sunt luate prin majoritate simplă. Documentația pentru aprobarea constituirii este depusă la Oficiul de reglementare din cadrul ministerului agriculturii, unde autorizarea de constituire și funcționare este aprobată prin ordin al ministrului. Apoi OUAI este înscrisă în Registrul Național al Organizațiilor Utilizatorilor de Apă ținut de Oficiul de Reglementare din cadrul Ministerului Agriculturii, al cărui rol este să sprijine constituirea și funcționarea OUAI.

ii) Structura internă

Legea stipulează prevederile minime pe care statutul OUAI trebuie să le includă. În general, structura generală a OUAI constă în Adunarea Generală, Consiliul de Administrație și Președintele. Adunarea Generală este compusă din toți membrii sau reprezentanții acestora. Adunarea Generală se întrunește cel puțin o dată pe an și deliberează pe bază de majoritate simplă. Consiliul de Administrație este compus din cel puțin trei membri ce se aleg pentru trei ani. Președintele este ales dintre membrii Consiliului de Administrație și reprezintă OUAI în toate privințele. Personalul administrativ diferă de cel executiv.

iii) Membrii OUAI

Membrii sunt persoane fizice și juridice ce dețin sau folosesc suprafețe agricole. Dacă cel care folosește suprafața agricolă este diferit de cel care o deține, ultimul va decide dacă va deveni membru al OUAI.

iv) Furnizarea apei și exploatare și întreținerea infrastructurii terțiere

OUAI pot desfășura activități pentru cumpărarea și distribuirea apei de irigații către membrii și non-membrii din teritoriul său. Pot de asemenea exploata, întreține și înlocui infrastructura și echipamentele de irigații.
v) Taxe și tarife

OUAI pot percepe și colecta de la membrii lor: 1) tariful intern de furnizare a apei de irigare; 2) cotizația de membru calculată pe baza suprafeței de teren deținute sau folosite; 3) taxe de exploatare și întreținere. OUAI pot crea fonduri de rezervă.

vi) Proprietatea asupra infrastructurii de irigații

OUAI poate deveni proprietara infrastructurii de irigații și a accesorilor aferente, la cerere.

Stadiul constituirii

În baza prevederilor legale oferite de Ordonanța de urgență nr 147/1999, pâna la sfârșitul anului 2004, au fost constituite 184 AUAI cu o suprafață totală de 684.124 ha, din care o suprafață semnificativă, de peste 100.000 ha, se regăsea în 3 județe: Brăila, Dolj și Constanța (Figura 6).

Fig.6. Evolutia înființării AUAI (2000 – 2004)

Imediat după aprobarea cadru legal în perioada 2004 - 2005 procesul constituirii de OUAI a început. În perioada 2005 –aprilie 2007 rata medie de constituire pe trimestru a fost de 30 OUAI.

Până la sfârșitul lunii aprilie 2007 au fost constituite un număr de 248 OUAI ce acoperă o suprafața de cca 700.000 ha, din care 103 OUAI reprezintă foste AUAI care au parcurs procesul de reorganizare ca OUAI conform legii și 145 sunt noi OUAI.

Efectul aplicării legii este vizibil (în special principiul recuperării costurilor și valoare unică la hectar, la nivel de țara, pentru alocarea subvenției) prin faptul că din totalitatea OUAI constituite aproape 200 OUAI au teritori amplasate la înălțimi de pompate de sub 70m, reprezentând cca 500000ha din totalul de 700000 ha. De asemenea, structura membrilor OUAI s-a schimbat: dacă în cazul AUAI majoritatea asociațiilor aveau membri agricultori individuali în cazul OUAI se observă o tendință de constituire de OUAI cu membri societăți comerciale.
Majoritatea OUAI constituite sunt amplasate în partea de est a câmpiei române, zonă cu mare tradiție în irigații și cu mare risc la secetă. În partea de vest se înregistrează un interes mai scăzut în constituirea de OUAI sau reorganizarea fostelor AUAI deși sunt amenajări cu viabilitate economică. Agricultorii din zonă au tendința să ia în considerare precipitațiile potențiale și nu planifică irigații. Deși în zona Dobrogei se înregistrează secete severe se observă că agricultorii din acesta zona nu arată interes semnificativ pentru constituirea de OUAI în general datorită costurilor ridicate care apar ca urmare a nevoii de pompare a apei la înălțimi mari de pompare (Harta 2).

**Viitorul OUAI**

Odată cu apariția Legii nr. 138/2004 costul apei de irigații, care anterior era furnizată un preț minim, este acum calculat real. Responsabilitatea privind infrastructura de irigații din amenajarea interioară și costul de livrare apei de irigații în plot cade în responsabilitatea OUAI.

Se observă că unele OUAI sunt active altele au devenit inactive. Cauzele pentru care unele OUAI au devenit inactive sunt următoarele:

- personalul de conducere a demisionat și nimeni nu a mai dorit sa-și asume acest rol
- uneori suprafața care necesită irigație din teritoriul OUAI este amplasată la capăt de amenajare, fiind ultima care primește apă de irigații, ceea ce face ca uneori agricultorii interesați în irigații, de regulă arandași, să se mute la alte OUAI amplasate în amonte
- membrii OUAI nu plătesc taxa de membru și contribuțiile stabilite ceea ce conduce la imposibilitatea supraviețuirii OUAI
- membrii nu doresc să participe la activitățile OUAI
- conducătorii adesea nu informează suficient membri lor și nu –i implică în activități.

Unele OUAI sunt administrate de către societăți comerciale, membree al OUAI, care au aredat terenul agricol de la agricultori individuali.

Din estimări rezultă că cca 50% din totalul OUAI constituite au ca membri principali societăți comerciale care iși asumă și rolul de conducere al OUAI. Această implicare a conducerii respectivei societăți în conducerea OUAI face ca obiectivul inițial al OUAI, organizație de agricultori să capete aspect de organizație orientată spre profit. Fără îndoială prezența OUAI cu
Harta 2. Distributia OUAI in cadrul sistemelor de irigatii
membri majoritar societății comerciale a sprijinit creșterea suprafeței irigate și transferarea managementului infrastructurii de irigații către sectorul privat.

Supraveghearea OUAI cu membri agricoltori individuali este puternic dependentă de vreme, dacă plouă sau nu. Când plouă agricultorii nu vor plăti costurile de întreținere. Dacă OUAI nu livrează apă și nu încasează bani din această activitate nu are fonduri necesare funcționării organizației. OUAI cu majoritatea membrilor agricultori individuali supravețuiesc în baza unui buget de subsistență care nu face decât să contribuie la deteriorarea continuă a infrastructurii.

Doar acele OUAI care-și pot permite plata lucrărilor de întreținere și reparații în avans vor fi în stare să aplice irigația și mai mult doar cele care vor fi în stare să aplică irigația an de an vor supraviețui. Va fi dificil sa colecteze bani în avans de la agricultorii individuali care în general au bani să efectueze plățile doar la momentul recoltării. Agricultorii care dispun de resurse financiare, arendași, vor fi capabili să plătească pentru întreținerea și exploatarea infrastructurii.

**Analiza SWOT**

**Puncte tari**

- Constituirea OUAI este avantajoasă pentru altfel cea mai mare parte a infrastructurii de irigații a fost abandonată sau a fost utilizată la un grad foarte scăzut.
- Agricultorii au înțeles mesajul despre serviciile de mai bună calitate prin managementul privat al OUAI.
- Managementul privat al OUAI și controlul adunării generale a condus la prețuri și tarife mai mici.
- Membrii OUAI au devenit mai dinamici în a solicita apă pentru irigații deoarece managementul infrastructurii din amenajarea interioară de irigații le-a fost atribuit. Pentru că au beneficiat de subvenții de la bugetul de stat și au încheiat contracte cu furnizorul de apă, acestea și-au consolidat relațiile cu celelalte părți implicate din sector (DADR, MADR, ANIF).
- Recuperarea costurilor de la utilizatorii de apă este realizată.

**Puncte slabe**

- Relația slabă dintre conducerea OUAI și membrii acesteia reflectată în slaba capacitate de a strângere cotizațiile și celelalte contribuții la fondurile OUAI până când agricultorii nu solicita apă pentru irigații și sunt dispuși să plătească costurile.
- Slabă cunoaștere a cadrului legal și prin aceasta abilitatea scăzută de a utiliza instrumentele disponibile pentru dezvoltarea OUAI.
- Nivelul scăzut de implicare în supravegherea activității ANIF (succursale și unități de administrare) prin consiliile de supraveghere.
- Subordonate unui mic grup de oameni cu interes în activitățile agricole care împiedică libera inițiativă și eficiența serviciilor de irigații.

**Oportunități**

- Dobândind abilități de accesare de fonduri prin completarea fondurilor OUAI, agricultorii pot accesa fonduri suplimentare de la administrația locală și Uniunea Europeană.
- Devenind membri ai organizațiilor internaționale de Asociații ale Utilizatorilor de Apă, OUAI pot să ia parte la evenimente internaționale și la schimburi de experiență privind managementul și finanțarea activității de irigații.
- Participarea la adunările generale crește coeziunea comunității locale prin aceasta contribuind la aplicarea principiului dezvoltării rurale.
- Prin consiliile de supraveghere de succursala și de unitate de administrare ale ANIF, OUAI pot să acționeze pentru a reorienta ANIF ca prestator de servicii de irigații.
- Posibilitatea de a accesa fonduri din Proiectul „Reabilitarea si Reforma Sectorului de Irigatii” pentru dotare si reabilitarea infrastructurii amenajarii interioare.
**Constrangeri**

- Eliminarea subventiilor pentru irigații va conduce la creșterea cheltuielor efective ale OUAI.
- Intrucât veniturileOUAI se constituie în principal din tarifarea serviciilor de irigații catre membri și nemembri de pe teritoriulOUAI, succesiunea unor ani ploiosi, cu o cerere mica de apa de irigatie, poate pune în dificultate functionarea organizației.
- Starea proastă a infrastructurii o va face de neutilitat dacă nu se vor face investiții în reabilitarea acesteia la timp, deoarece prețul acestei reabilitări crește cu fiecare zi și poate deveni imposibil de acoperit.

**Sprijinul Proiectului privind reabilitarea și reforma sectorului de irigații pentru OUAI**


Principalele obiective ale Proiectului sunt următoarele:

<table>
<thead>
<tr>
<th>a) consolida reursei sectorului de irigații:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- sprijin pentru funcționarea inițială a ANIF;</td>
</tr>
<tr>
<td>- sprijin pentruOUAI: instruire pentru constituire și pentru managementul și funcționarea infrastructurii din amenajarea interioară, dotarea cu echipament de birou și de irigații, precum și reabilitarea infrastructurii din amenajarea interioară, cuprindând și instalarea de debitmetre de apă;</td>
</tr>
</tbody>
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<thead>
<tr>
<th>b) reabilitarea infrastructurii principale ale irigații:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- reabilitarea infrastructurii principale aferente unei suprafețe de 150.000 ha.- 7 amenajări de irigații.</td>
</tr>
</tbody>
</table>

Sprijinul pentruOUAI prin Proiect poate fi considerat concentrat pe:

- descreșterea quantumului tarifului anual și de livrare prin creșterea performanței infrastructurii principale de irigații ca urmare a reabilitării;
- descreșterea tarifelor interne aleOUAI datorită reabilitării infrastructurii din amenajarea interioară;
- îmbunătățirea calității activitățiiOUAI prin dotarea cu echipamente de birou și de irigații pentru aplicarea și supravegherea irigațiilor.

**Instruirea pentru OUAI**

Proiectul va finanța diverse cursuri de instruire pentru personalulOUAI al căror scop este să contribuie la dezvoltarea și consolidareaOUAI.

Principalele cursuri vor avea ca obiect următoarele:

- **Organizarea și managementul: irigațiile ca afacere**
  
  OUAI vor fi instruite în privința modului cum pot fi eficiente și eficace în munca lor. Acestea ar trebui să înțeleagă de ce ar fi mai bine să fie partenerul prestatorului de servicii ANIF și cum să deservească corespunzător proprii membri. Elementul de afaceri al irigațiilor urmează să fie scos în evidență în sensul că fondurile urmează să fie strâns și plătite, contractele, strângerea de fonduri, scutirile și sancțiunile sunt stabilite pentru a deveni parte a practicii sezoniere.

O altă problemă care este esențială pentru o organizare eficientă este menținerea nivelului de administre fără a fi nevoie să se reamintească necesitatea de a presta și capacitatea de a controla acțiunile sale, în cadrul stabilit al politicilor guvernamentale.

- **Finanțele, contabilitatea și raportarea**
  
  OUAI ar trebui să prezinte un tablou clar al activității în privința aspectelor financiare. Acestea ar trebui să aibă abilitățile necesare pentru a ține înregistrări, a stabili tarife și cotizații, a urmări plăți și a raporta membrilor asupra acestora într-o manieră standardizată și transparentă. De asemenea, este important pentru aceste organizații să înțeleagă și să fie familiarizate cu mecanismul de acordare a subvențiilor și procedurile asociate și să fie capabile să prezinte managementul lor de afaceri.
Experiența dobândită

Înființare de OUAI pe terasele joase, 80% din teritoriile OUAI fiind amplasate sub 70 m. înălțime de pompare, arată că fermierii, utilizatorii de apă, au înțeles repede că cea mai mare parte a subvențiilor sunt orientate către amenajările de irigații viabile economic și cu costuri mici de exploatare. Prin managementul privat al OUAI, membrii au avut apă la timp și lucrările de întreținere și reparații au fost executate cu promptitudine, astfel refacându-se bunele relații dintre personalul OUAI și beneficiarii serviciilor de irigații.
Oficiul de reglementare va fi capabil să își îndeplinească sarcinile principale, cum sunt supravegherea și monitorizarea OUAI, numai prin reprezentanții locali.

Servicii de irigații mai bune și o participare mai bună la luarea deciziilor vor fi posibile numai prin constituirea de federații de OUAI la nivel de amenajare și pregătirea pașilor următori pentru realizarea reprezentării în comitetele de bazin, ca bază pentru o reală descentralizare a managementului irigațiilor.

Cotizația este de regulă plătită numai de acei membri OUAI care irigă cu adevărat, restul chiar dacă sunt înregistrăți ca membrii comportându-se ca nemembri. Unele dintre OUAI au impus regula plății retroactive a cotizațiilor din anii anterioși dacă un membru se decide să irige după un număr de ani în care a fost inactiv.

Prin acțiunea factorului uman infrastructura de irigații se deteriorează an de an și asigurarea de fonduri suplimentare de înlocuire este o mare pierdere. Sprijinul financiar are trebui acordat fie pentru paza și protecția acestei infrastructuri fie prin aplicarea efectivă a sancțiunilor legale, conform art. 82 din Legea îmbunătățirilor funciare.

Una din principalele constrângeri ale accesului la fonduri UE este că subvențiile pentru exploatarea și întreținerea amenajărilor de irigații se vor elimina, fiind înlocuite de sprijinul financiar pentru grupei de producători, dezvoltare rurală și protecția mediului. La data la care subvenția va fi retrasă OUAI ar trebui să formeze federații care să preia cel puțin infrastructura secundară dacă nu chiar întreaga amenajare.
Bibliografie

Anuarul statistic al României, anii 2001,2002


Agricultural Situation in the Candidate Countries. Country Report on Romania.


Binnie &Partners Ltd (2004) Irrigation and Drainage Study in Romania
Projekti I Menaxhimit Te Burimeve Ujore
Tirane- Shqipëri

Corneliu Tusa, Daniela Paraschiv, Florin Badulescu, and Alexandru Redulescu

Hyrje

Shqipëria shthrihet ne bregdetin lindor te detit Adriatik ne jug-perendim te Ballkanit. Bazuar ne kushtet klimaterike, dhërave dhe vegjetacionit, Shqipëria është ndare ne tre zona agro-ekologjike; ultësira bregdetare, zona kodrinore dhe zona malore.

Bujqësia është sektorit e armaturës së ekonomisë së vendit dhe vendit nëse e ndërteshëm për 50% të prodhimit të përgjithshëm bruto dhe punëson në 60% të forcave aktive. Ujitja ka rëndësi jetike në bujqësinë e vendit.

Edhe pse reshtet vetëm nëse është jetikë në bujqësinë e vendit. Ujëra është sektorin e rëndësishëm në ekonomisën e vendit dhe zë afër të 50% të prodhimit e tyre. Më postë pa të përkohësitet nëse ujitja e tyre mund të ndihmojë rritjen e prodhimit.

Burimet ujore. Krahuar më vjetër e njohur të Evropës Qendrore, Shqipëria është një një së rëndësishëm të mbrëmshëm nën ndërmarrje. Sasia e ujarëve është në 25.7 miliard m3, nga të cilat 2% ose 588 milion m3 mund të derdhur në 600 rezervuare të cilat i shërben ujitjes.

Problemet e kullimit, parandalimi nga përmbytja dhe erozioni, janë të rëndësishme në zonën bregdetare, në të njëjtën këndvështrim. Nga mësimi i vitit 1980, ndërtimi i ujërave dhe kulluese ish të vërtetuar nga kushtet e jetit të tjera të vendit. Nga vitet e pasme, ndërtimi i ujërave dhe kulluese janë të rëndësishme në të gjithë Shqipëri.

Infrastrukturë e Ujitës

Infrastruktura ujitëse është shumë fragmentarë dhe fragmentarizuar. 55% e sipërfaqes së rrethimit të ujit të ndërtuara në Shqipëri janë në këndvështrim me 70% të tokës bujqësore. Nga vitet e pasme, ndërtimi i ujërave dhe kulluese janë të rëndësishme dhe të vendosura në të gjithë Shqipëri.

Menaxhimi i Infrastrukturës së Ujitës

Përpara vitit 1991 ujiqësia Shqiptare ishte plotesisht kolektive. Ishin te krijuara mbi 500 kooperativa bujqësore dhe 150 ferma fshëtitore te cilat mbulojnë me pak se 5,000 ha. 653 diga dhe rezervuare shpërndajnë ujë për rreth 184,000 ha. 639 stacione pompimi me 1, 250 elektro-pompa sigurojnë marrjen e ujit nga lumenjtë dhe rezervuaret për rreth 78,000 ha. Nga lumenjtë, me rrjedhje të lidhur me ujërat e quajtura Dretorë të Ujërash dhe Ndërmarrjeve e Bujqësisë, nëpërmjet ndërmarrjeve të ujërave të vendosura në të gjithë Shqipëri.

Pas vitit 1991 rreth 300,000 ha të përfshirë ne skemat ujitëse dhe 153,000 ha ne ato kulluese të ndërtuara. Ne te mëndajn këto kohe në Shqipëri filloi edhe privatizimi i tokës bujqësore. Nga vitet e pasme, ndërtimi i ujërave dhe kulluese, ndërsa për 1,000 ha urdhi me shume ujë, mund të ndihmojë rritjen e prodhimit i bujqësisë.
Transferimi i menaxhimit te ujitek tek Shqoptatet e Perëndimit te Ujit (SHPU)

Për shkak të krizës se krijuar në sektorin e ujitek dhe kullimit, Qeveria Shqiptare adaptoi politikat e transferimit të kanaleve të dyte në të që përdoruesit e tyre nëpërmjet Shqiptave të Perëndimit të Ujit, ndërkohe qe për kanalet kryesor dhe rezervuarët shfrytëzimi dhe mirëmbajtja mbetijët përgjegjësi e DU-ve.

Ne vitin 1998, Qeveria Shqiptare vendosi qe përgjegjësi për shfrytëzimin, administrimin dhe mirëmbajtjen e rritjet te pare ujitek të kalojnë vete fermerëve nëpërmjet federatave të Perëndimit të Ujit (F/SHPU) .

Mënenë shfrytëzimi, administrimi dhe mirëmbajtja e sistemeve ujitek tashmë ishte përgjegjësi e F/SHPU-ve, DUTE u ristrukturoi në Borde Kullimi (B.K), të cilat janë përgjegjëse për mirëmbajtjen e sistemit kullues, mbrojtjen nga përmbjytja dhe erozioni.

Projekti i Pare i Rehabilitimit të Ujitek

Qe prej fundit te viteve 1994 Banka Botërore, ka mbështetur Qeverinë Shqiptare, nëpërmjet Ministrisë se Buqësisë, Ushqimit dhe Mbrojtjes se Konsumatorit në rehabilitimin e skemave ujore ekzistuese, dhe përmirësimin e ujitek, me qellim qe fermërët të rrisin prodhimin e produkteve buqësore.

Gjate Projektit te Pare te Rehabilitimit të Ujitek 1994 – 1999 janë rehabilituar 70,000 ha në ujitek dhe 100,000 ha në kullim në 7 rrethe. Gjate kësaj kohë u krijuan mbë 200 SHPU dhe 2 F/SHPU.

Projekti i Dyte i Rehabilitimit të Ujitek dhe Kullimit

Projekti i Dyte i Rehabilitimit të Ujitek dhe Kullimit (1999–2004) mbështeti dhe forcoi strategjine e Shtetit Shqiptar në sektorin e ujitek dhe kullimit. Ne kete projekt u perfsh iniciar 14 rrethe te reja, u krijuan edhe 170 SHPU të tjera dhe jane rehabilituar 50,000 ha në ujitek dhe në kullim.

Projekti i dyte kishte tre sfida kryesore

- Sfida e pare ishte shtrirja e e rehabilitimit nepermjet bashkefinancimit (demand-driven)
- Krijiim i qendrueshmerise me menaxhimin e veprave te transferuara, dhe transferimi ne te gjithe vendin dhe infrastrukturat e ujitek te SHPU-te dhe F/SHPU-te.
- Ristrukturimi i Drejtorive te Ujrave me Uërave me Borde Kullimi.
- Krijiimi dhe mbështetja e Federatave te Perëndimit të Ujit.

Projekti i Menaxhimit të Burimeve Ujore (2004 –2009)

Qeveria Shqiptare dhe Banka Botërore, me qellim përhapjen e iniciativave të mara gjate projektit të pare dhe të dyte ne te gjithë tërëtori i vendit dhe për të siguruar qëndrueshmëri të vazhdueshme ne sektorin e ujitek dhe kullimit dhe kompletimin e reformave institucionale, rëne dakord për ngritjen e Projektit të Menaxhimeve të Burimeve Ujore. Objektivi kryesor i Projektit është përgjegjësi e prodhimit bujqësor dhe krijiimi që qendrueshmerise se këttj sektorin nëpërmjet transferimit të menaxhimit te ujitek të SHPU-te dhe F/SHPU-te dhe menaxhimin i kullimit nga Bordet e Kullimit.

Ne mënyme te vëçante Projekt i synon te rrisë shtrirjen e konceqit të menaxhimit te ujitek me pjesëmarrje dhe zhvillimin e mëtejshëm të rolit të SHPU-ve. Mbështetje institucionale dhe rritjen e transparencës dhe plotësimit të kërkesave për ujë.

Objektivat kryesore te projektit jane:

- Rritja e prodhimit bujqësor nepermjet rehabilitimit te skemave ujitek dhe kulluese.
- Zbutja e varfërisë, rritja e te ardhurave nga fermat, si dhe krijimi i mundësive për punësim i njerëzve që jetojnë ne zonat rurale.
- Sigurimi i qendrueshmerise se investimeve te kryera ne ujitje dhe kullim nëpërmjet fermerëve që janë te përfshirë ne shfrytëzimin dhe mirëmbajtjen e sistemeve eficent te cilet mbulojne mbetjen e koston.
- Uljen e rrezikut nga përmbytja dhe erozioni.
- Për te mbështetur iniciativën e Qeverise dhe SHPU-ve ne drejtim te përmirësimit te bazave ligjore mbi sigurinë e digave.

Struktura organizative e Projektit

Projekti eshte ne varesi te MBUMK-se. Njesia e menaxhimit te projektit eshte instaluar ne Minisitri dhe bashkepunon per menaxhimin e projektit. Bordi Drejtues i Projektit, ku perfshihet Ministri i Bujqesise dhe drejtoret e departamenteve kryesore, te cilet jane përgjegjësisë për hartimin dhe miratimin e politikave te projektit. Njësia e menaxhimit te projektit eshte mbështetur nga konsulentë te huaj dhe vendas.

Financimi i Projektit

Projekti financohet nga Banka Botërore, Qeveria Shqiptare me bashkëfinancim te Fondit Kuvajtian dhe Fushat te Institucioneve te tjera financiare. Vlera totale është rreth US$ 40 milion.

Komponentët e Projektit

Komponentet kryesore te projektit jane :
- Komponent 1: Rehabilitimi i digave dhe veprave te marrjes, kanaleve ujites, kanaleve kullues, punime per mbrojtjen nga përmbytja perfshirë projektimit dhe supervizimin.
- Komponent 2: Mbështetje institucionale per SHPU-te, F/SHPU-te dhe Borde te Kullimit.
- Komponent 3: Studime teknike per te permiresuar projektet e ujitjes dhe kullimit si dhe menaxhimin e mjedisit.
- Komponent 4: Mbështetje ne lidhje me zbatimin e programave te zhvillimit, adminsitrimin e projektit dhe mbështetje per njesine e menaxhimit te projektit.

Ecuria e Projektit deri ne Maj 2007

Ecuria dhe arritjet e Projektit deri ne fund te muajit Maj 2007 ne menyre te permbledhur renditen si me poshte :

Bazuuar ne Projektin e Bankes Botërore, Qeveria Shqiptare po permbose programin per transferimin e shfrytezimit, adminsitrimit dhe mirembajtjen e sistemeve ujore tek SHPU-te ne te gjithe vendin.

Deri tani jane krijuar 489 F/SHPU, 64% e te cilave jane funksionale, dhe mbulojne nje superfaqe te pergjitheshme ne sherbim prej 284.000 ha
Jane rehabilituar 17,000 ha ne ujitje dhe eshte ne proces rehabilitimi i nje numri te konsiderueshem veprash.
Jane rehabilituar 22,000 ha ne kullim.
Eshte krijuar Njesia e Menaxhimit te Digave, dhe deri tani jane rehabilituar 19 diga, si dhe jane ne process rehabilitimi 13 diga te tjera.
Mbështetje institucionale dhe monitorim i Bordeve te Kullimit.
Zhvillimi i SHPU-ve

**Bazat ligjore**

Baza ligjore per SHPU-te dhe Federatat eshte Ligji per Ujitjen dhe Kullimin No 8518 date 30.07.1999. Ligji lejon kriqimin e shoqatave, regjistrimin e tyre ne gjykate dhe transferimi te perjegjeshise te menaxhimit te ujiteve. Ligji eshte ne qyte dhe per federatat. Ligj perfshin rregulloren, supervizionin dhe kontrollin, mbeshtetja e qeverive nuk eshte obligim ne Ligji. Sipas Ligjit te viti 1994, rehabilitimi ishte nje parakusht per formimin e SHPU-ve, por tani ky detyrat ka ndryshuar dhe prioritet ka formimi i SHPU-ve dhe transferimi i menaxhimit, i cili eshte parakusht per rehabilitim me demand-driven, procedure qe ka filluar qe ne projektin e dyte. Aktualisht Qeveria e Shqiperise me mbështetjen e Bankes Botoreore, po punon per disa ndryshime ne Ligjin 8518 date 30.07.1999. Per te patur nje aktivitet me te mire te institucioneve perjegjese dhe nje funkcionim me te mire te sistemeve ujites dhe kullauese, u pa e nevojshme qe ky ligj te permiresohet. Problemet qe kerkojne vëmendje te vecante jane; a) statutet e SHPU-ve dhe Bordeve te Kullimit. b) grumbullimi i tarifes se ujiteve dhe mbulimi i kostos. c) shfrytezimi i rezervuarve, d) pjesmarrja e Pushtetit Lokal ne menaxhimin e ujiteve dhe pjesmarrje.

**Karakteristikat organizative**

SHPU-te i sherbejne vetem antareve te tyre. Ato drejtohen nga Keshilli Administrativ, i cili zgjidhet nje here ne dy vjet nga mbledhja e perqitshemshme e te gjithe antareve ose nga mbledhja e perfaqisise. Kryetari dhe SHPU-se zgjidhet nga Mbledhja e perqitshemshme ose nga Keshilli Administrativ. Kryetari i SHP-se caktion keshillin Ekzektiv, i vili perbehet nga financieri, sekretari dhe mjeshtrat e ujit., te cilat jane perjegjese per menaxhimin dhe perditshhemin te SHPU-se. Antaret e Keshillit Ekzektiv paguhen, por shumica e tyre vetem gjate sezonit ujites, ne vartesi te te ardhurave te SHPU-se.

Ne perqitshesi SHPU-te administrojn per sisteme te thjeshta, te cilat nuk kerkojne menaxhim te sofistikuar, qe shperndajnje uje me rrjedhje te lirme nga kanalet ujites siperfaqesore, te cilat ujitin siperfaqe te vogla qe varjojne nga 500 – 1000 ha. te.

Federatat kane te mjeten strukture me SHPU-te. Ato jane perjegjese per menaxhimin e sistemit ujites kryesor dhe antare te saj jane SHPU-te qe qerrin nga nga ky sistem. Kryetari dhe Keshilli Ekzektiv dhe Fedetates zgjidhen nga Kryetaret e SHPU-ve, anatare te Federates. Federata menaxhion sisteme ujitrese te hapura te me medha dhe cilat jane te veshtra per tu administrojne, prandaj ketu jotja me e madhe te tyre jane me arsim te larte ( agronom, financiere, inxhiniere) dhe ne mje ekspervencen te gjate pune ne kete sektor.

Krişim i Federatave ne Shipper ka filluar ne vitin 1998. Aktualisht nga 22 Federata te krijuara, 9 prej tyre jane ndjekura ne SHPU te medha. Qellimi eshte reduktimi i shpenzimeve administrative.

**Struktura**

Shoqatat e Perforimit te Ujit janë krijuar ne baze te sistemit hidrologjik, me skema te vogla te pavarura ose ne baze ne nje osa ose disa kanaleve sekundare te sistemeve te medha. Siperfaqja me që të ndryshmojë te SHPU-se eshte 500 ha.

Federatat e SHPU-ve vepron qe nga vepra e marrjes se ujit dhe shpenzohet uje skema te medha reth 5,000 ha. Federatat jane krijuar ne skema te vecanta dhe nuk vepronjne ne me shume se nje skema, por mund te vepronjne ne nje osa dy rreth.

SHPU-te dhe Federatat jane perjegjesishe te plotë brenda juridikshin dhe te tyre. Megjithëse SHPU-te bashkpunojnepunj ne federatat tek te cilat ato janë anetare, ka raste kur Shoqata ben pjeshe ne se shume se nje federate.

**Unioni Kombetar i SHPU-ve dhe F/SHPU-ve**

Unioni Kombetar i SHPU-ve dhe F/SHPU-ve eshte krijuar ne vitin 2003 me inisiativen e SHPU-ve dhe FSHPU-ve per ti perfaqesuar ato ne nivele te ndryshme institucionale dhe per te zgjihur problemet e tyre.
Rregullimi i Kuadrit Ligjor

SHPU-te dhe Federatat, sipas Ligiit jane te autorizuara te caktojne tarifen e slerbimit te ujites dhe qeveria nuk perfshihet ne kete proces. SHPU-te dhe Federatat inkurajohen te hartojne buxhete te plota dhe te mjaftuesheme per te realizuar mirembajtjen e kanaleve dhe per te mbuluar shpenzimet administrative dhe te stafit. Duhet te kemi paraqish qe te mbajtjene e shpenzime te vogla. Duhet te thekojme qe detryra me e veshtire per te cilin perballen SHPU-te eshte grumbullimi i tarifes te slerbimit te ujites dhe ekziston nje tendence per ulur tarifen e slerbimit te minimum.

Ligi i vitit 1999 e vendos Ministrine e Bujqesise, Ushqimit dhe Mbrojtjes se Konsumatorit si nje organizem rregullues dhe mbikqyres per SHPU-te dhe Federatat. Brenda kesaq Ministrie eshte krijuar perpara disa rregullues dhe mbikqyres i cili realizon; a) auditimin fizik dhe financiar te SHPU-ve, b) analizon dhe zgjidh konfliktet midis paleve. Gjate vitit 2006 ky departament ka audituar 185 SHPU dhe FSHPU. Numri i auditimeve eshte rritur nga viti ne viti dhe eshte venre perreperesim ne mbajtjen e dokumentacioneve teknike dhe financiare. Personat qe kane drejtuar SHPU-ne ne menyre jo ligjore, qe nuk kane patur rezultate ose qe kane bere shkelje financiare jane shkarkuar nga detryra ose jane derguar per ndjekje penale.

Mbeshtetja institucionale e SHPU-ve

- **Publiciteti dhe fushata e ndergjegjesimit**
  Ne perpjekje per te ndergjegjesuar fermeret per anetaresimin ne SHPU dhe per rendesine e tij, eshte ndermarrre nje fusha ku fermeret te krijojnepubikiteti dhe informimit. Zgjidhja e njerdet mbi ndryshme duhet te publikohet me qellim qe te rritet pjesemarrja e fermereve te SHPU-si dhe te drejtat e detryrimet qe kane fermeret. Ato shpjegojne rrugen e re te organizimit.

- **Hartimi dhe pershtatja e rregullores se brendshme.**
  SHPU-te funksionojne ne perputhje me ligjin, por ato kanne nevoje per te vendosur vete disa rregulla. Per kete arsy, SHPU-te kanne perparitet disa rregulla te brendshme per te rregulluar aktivitetet e tyre te perditshme.

- **Transparenca dhe perjegjesia**
  Te gjitha aktivitetet e SHPU-se duhet te jene transperente, ne menyre qe fermeret te krijone besim te SHPU-ja. Mbledhja e perjegjesjes duhet te publikohet me qellim te te rritet pjesemarrja e fermereve per te zgjidhur problemet. Zgjedhja e Keshillin Administrativ te SHPU-se duhet te jene sa me transparente te te jetet e mundur, dhe njerzet e zgjedhur duhet te jene me te votuarit nga anetaret e SHPU-te. Te gjitha te dhenet financiare te SHPU-te duhet te pasqyrohen ne vende te dukshme, ne menyre qe fermeret ta dene sa ku shkojne parate dhe tyre.

- **Grumbullimi i tarifes se slerbimit te ujites**
  Fermeret, anetaret e SHPU-si duhet te paguajnepaguar tarifen e slerbimit e ujites, sepse keto para para slerbajnje per mirembajtjen dhe funksionimin e rrejjet ujites. Pagesa e cmimit te ujites perpara fillimit te ujites ose pagesa e nje tarife te fiksuar slerben per mirembajtjen. Publikimi ne vende te dukshme e emrave te fermereve qe nuk kane paguar tarifen e ujites. Informimi dhe bashkepuniimi me pushtetojne lokal per nxitjen e ujites qe nuk kane slerbim

- **Mirembajtja dhe funksionimi e kanaleve te trete.**
  Mirembajtja e kanaleve te trete eshte njerjet e perpariteve dhe fermereve. Ne disa raste ky vendim nuk eshte zbatuar, kjo eshte dhe aryjet e ndermarrjes te shpeshata te perpara i rendites dhe informuese me fermeret e njesive terciale, me qellim per te jetur i nga zgjidhje dhe mirembajtjen e tyre.

- **Permiresimi i aktiviteteteve te manaxhimit te ujites.**
  Trajnim i mbraperi dhe mbraperi te perpariteve dhe fermereve. Trajnim i kryetareve dhe financiereve te SHPU-te mes qellimit e drejtimin e veprimave dhe administrimin e aktivitetit financiar.
Impakti Ekonomik

- Kulturat e ujitshme – pothuajse jake dyfishuar
  Me rrehabilitimin e kanaleve, fermeret kane kultivuar bime te ujitshme duke ndryshuar strukturen e mbjelljeve : 42% foraqijere, 39% perime dhe bostane, 19% peme frutore dhe vreshta. Dritherat zene nje vend te pakonsiderueshem.
- Prodhimi bruto bujqesor eshte rritur 40%
  Duke u bazuar ne studimin e monitorimit te vitit 2006, rezulton se prodhimi bujqesor vazhdon duke u rritur.
- Perfitimi nga te ardhurat bujqesore eshte rritur ne 250%
  Bazuar net e njejtin studim te ardhurat e fermes ne leke jane rritur ne 250%, EIRR eshte 23%.

Impakti Social

- Koncepti i perfshirjes se fermereve ne shoqate eshte mirepritur prej tyre.
  60% e popullise jeton ne fshatra duke bere te mundur njohjen me shembuj te mire te manaxhimit te ujitjes nepernjmet SHPU-ve. Per kete arsy, ata nuk ngurrojen per te krijuar SHPU-ne ne territorin e tyre.
- Perfitimi i Projektit – prodhimi rritet 2-3 here me shume se ne rastin kur nuk ka SHPU dhe kur nuk eshte bere rehabsititim.
- Fermeret jane te ndergjegjuesuar qe te marrin pjese ne SHPU, te bejne kerkesen dhe te paguajne.
- Fermeret qe kan perfitur nga rehabsitimi i kanaleve dhe manaxhojne ujitjen permes pjesemarrjes jane te bindur, qe ata do te vepronjic sic duhet per te marre uje ne kohe dhe me sasinqe qe bimet kane nevoje, ne perputhje me ligjin e ujitjes dhe kullimit.

- zgjidhja e konflikteve
  Pas vitit 1991, kur numri i fermave u rrit dhe Drejtorite e Ujrave nuk mund te perballonin shterndarjen e uj, ne kete moment fermeret po hynin ne konflik me njeri-tjetrin. Krijimi i SHPU-ve filloi te reduktonte dhe te zgjidhke konfliket te menyre te ndjeshme.
- Roli i gruas ne Manaxhimin e Ujitjes me Pjesemarrje
  Gruaja ka luajtur dhe vazhdon te luaj nekole te rendesishem ne bujqesi, per mbijetesen e fshatit sic ka bere githmone. Ne ujitjen e kulturave bujqesore grate jane te perfshira gjereshisht dhe shume njerez thone se ato bejne me shume se burrat. Kjo eshte nje nga arsye te pse PMU-ja eshte e interesuar ti perfishije grate, po aq sa edhe burrat ne programet vendim-marrese te SHPU-ve. 10% e anetareve te Keshillave Administrative dhe Ekzekutive te SHPU-ve jane gra.

Arritjet kryesore

- Manaxhimi i Ujite me Pjesemarrje eshte pranuar nga te gjithe fermeret ne te gjithe vendin.
- SHPU-te manaxhojne sistemin ujites me mire se ish DU-te vecanerisht ne ato zona ku te ardhurat e fermerit bazohen ne bujqesi.
- Mosmarreveshjet midis fermereve jane reduktuar.

Problemet kryesore

- Pagesa e tarifes se ujitjes nuk eshte ne nivelet e duhura.
- Mungesa ne kryerjen e punimeve per mirembajtje ne rrjetin e trete ujites, si pasojje ndryshimeve demografike.
Nacionalni Izvještaj Bosna i Hercegovina

Mario Bajto, Dalibor Vrhovac and Almir Prljača

Uopšteno O Bih I Njenim Vodnim Resursima

Bosna i Hercegovina se nalazi u jugoistočnom dijelu Evrope. Prostire se na površini od 51.129 km². Na sjeveru, zapadu i jugu graniči sa Republikom Hrvatskom, dok na istoku graniči sa Srbijom i Crnom Gorom. Sjevernim dijelom Bosna i Hercegovina izlazi na rijeku Savu, a južnim na Jadranško more kod Neuma.

Zemljište Bosne i Hercegovine je izrazito brdsko-planinsko, sa prosječnom nadmorskom visinom od 500 m. Od ukupne površine BiH 5 % otpada na ravnice, 24 % na brežuljke, 42 % na planine, a 29 % zauzima krš. Na šume i šumska zemljišta otpada oko 50 % teritorije, dok je ukupna površina poljoprivrednog zemljišta oko 2,5 miliona hektara ili 0,7 ha po stanovniku.

Klima je umjereno kontinentalna na sjeveru, planinska u središnjem dijelu i na jugu mediteranska.


Država BiH je centralni organ vlasti ali ima samo ograničene i specifične ovlasti, dok su dva entiteta i Distrikt Brčko u političkom, administrativnom i pravnom smislu u velikoj mjeri fiskalno autonomni.

Dva entiteta su asimetrična u pogledu institucionalnog uređenja. Federacija se sastoji od deset kantona koji se dalje dijele na 79 općina, dok Republika Srpska nema taj srednji kantonalni nivo, nego samo 62 općine. U Federaciji BiH, kantoni imaju znatnu fiskalnu ovlast. Općine su lokalne administrativne jedinice u okviru entiteta.


Bosna i Hercegovina je relativno bogata vodnim resursima, ali ako se sa njima ne bude gazdvalo na pravilan način uskoro se možemo suočiti sa nestašicom ovog resursa.

Sa aspekta vodoprivrede, uvažavajući preporuke Okvirne direktive o vodama EU, teritorija Bosne i Hercegovine je podijeljena u dva vodna područja i to:

– Vodno područje Save (oko 75 % ukupne teritorije BiH),
– Vodno područje Jadranскog mora (oko 25 Ukupne teritorije BiH).

Vodno područje Save obuhvata dio međunarodnog bazena rijeke Dunav (mešunarodnog podbazena Save) na teritoriji BiH. Vodno područje Jadranског mora obuhvata dijelove međunarodnih riječnih bazena rijeka Neretve sa Trebišnjicom, CETine i Krke na teritoriji BiH.

Tabela sa prikazom bruto domaćim proizvodu po stanovniku u zadnjih par godina:

<table>
<thead>
<tr>
<th>Bruto domaći proizvod po stanovniku (US$)</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.337</td>
<td>1.397</td>
<td>1.614</td>
<td>2.024</td>
<td>2.424</td>
<td>2.612</td>
</tr>
</tbody>
</table>
**Poljoprivreda**

**Struktura korištenja zemljišta u BiH**

<table>
<thead>
<tr>
<th>Kategorija zemljišta</th>
<th>BiH (ha)</th>
<th>Federacija BiH (ha)</th>
<th>FBiH (%)</th>
<th>RS (ha)</th>
<th>RS (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ukupna površina</td>
<td>5.112.879</td>
<td>2.607.579</td>
<td>51,0</td>
<td>2.505.300</td>
<td>49,0</td>
</tr>
<tr>
<td>Poljoprivredno zemljište</td>
<td>2.557.415</td>
<td>1.258.796</td>
<td>49,2</td>
<td>1.298.619</td>
<td>50,8</td>
</tr>
<tr>
<td>Oranice i baštine</td>
<td>1.179.661</td>
<td>508.062</td>
<td>43,1</td>
<td>671.599</td>
<td>56,9</td>
</tr>
<tr>
<td>Ratarske kulture</td>
<td>1.077.908</td>
<td>461.360</td>
<td>42,8</td>
<td>616.548</td>
<td>57,2</td>
</tr>
<tr>
<td>Voćnjaci</td>
<td>95.753</td>
<td>41.395</td>
<td>43,2</td>
<td>54.358</td>
<td>56,8</td>
</tr>
<tr>
<td>Vinogradi</td>
<td>6.000</td>
<td>5.307</td>
<td>88,5</td>
<td>693</td>
<td>11,5</td>
</tr>
<tr>
<td>Livade</td>
<td>485.213</td>
<td>248.291</td>
<td>51,2</td>
<td>236.922</td>
<td>48,8</td>
</tr>
<tr>
<td>Pašnjaci</td>
<td>861.177</td>
<td>502.443</td>
<td>58,3</td>
<td>358.734</td>
<td>41,7</td>
</tr>
<tr>
<td>Polj. zem. po stanovniku</td>
<td>0,56</td>
<td>0,90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oran i bašt po stanovniku</td>
<td>0,23</td>
<td>0,46</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Šumsko zemljište i goleti*</td>
<td>2.709.769</td>
<td>1.500.179</td>
<td>55,3</td>
<td>1.209.590</td>
<td>44,7</td>
</tr>
</tbody>
</table>


Osnove karakteristike aktuelnog stanja poljoprivrede u BiH:
- Agrarna problematika u nadležnosti više ministarstava (poljoprivrede, vodoprivrede i šumarstva; energije, rudarstva i industrije; trgovine; finansija; raseljenih osoba i izbjeglica).
- Finančiranje poljoprivrede sredstva Budžeta, kreditna sredstva, grant sredstva, sredstva Vlada prijateljskih zemalja, sredstva proizvođača.
- Dosadašnja kreditna sredstva (nepovoljna za farmere, visoke kamate, kratak grejš period, kratak rok otplate, slaba otplata).
- Oranične površine (usitnjenost parcela - prosječna veličina imanja ispod 2 ha, obrađuje se oko 50 % raspoloživih oraničnih površina, površina oranica 0,17 ha po stanovniku nedekvatno korištenje državnog poljoprivrednog zemljišta).
- Farmeri (neregulisan status, pogoršana starosna struktura stanovništva koje se bavi poljoprivredom, mali procenat robnih poljoprivrednih proizvođača medu farmerima, u cijeni proizvoda najmanju korist imaju farmeri, slab interes mladih za poljoprivredu).
- Minirano zemljište - pod sumnjom je preko 200.000 ha (BiH je minama najugroženija zemlja u Evropi i šesta u svijetu).

Na osnovu podataka Agencije za statistiku BiH u narednoj tabeli daje se pregled zasijanih oraničnih površina sa učešćem najzastupljenijih kultura:

<table>
<thead>
<tr>
<th>Godina</th>
<th>Zasijano obradivo zemljište (u ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ukupno</td>
</tr>
<tr>
<td>2004/2005</td>
<td>553.000</td>
</tr>
<tr>
<td>2005/2006</td>
<td>556.00</td>
</tr>
</tbody>
</table>

Kao što je vidljivo iz tabele u Bosni i Hercegovini se najviše siju žitarice (57%), krmno bilje (26%), povrće (15%) i industrijsko bilje (2%).
Po pojedinim kulturama pregled zasijanjosti je sljedeći:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pšenica</td>
<td>81.409</td>
<td>73.184</td>
<td>89,90</td>
</tr>
<tr>
<td>Raž</td>
<td>3.355</td>
<td>4.205</td>
<td>125,34</td>
</tr>
<tr>
<td>Ječam</td>
<td>20.269</td>
<td>21.708</td>
<td>107,10</td>
</tr>
<tr>
<td>Zob</td>
<td>18.476</td>
<td>17.447</td>
<td>94,43</td>
</tr>
<tr>
<td>Kukuruz</td>
<td>195.636</td>
<td>196.884</td>
<td>100,64</td>
</tr>
<tr>
<td>Sunčokret</td>
<td>215</td>
<td>297</td>
<td>138,14</td>
</tr>
<tr>
<td>Uljana repica</td>
<td>520</td>
<td>1.038</td>
<td>199,62</td>
</tr>
<tr>
<td>Soja</td>
<td>5.383</td>
<td>6.573</td>
<td>122,11</td>
</tr>
<tr>
<td>Duhan</td>
<td>2.906</td>
<td>2.438</td>
<td>83,90</td>
</tr>
<tr>
<td>K罗马ir</td>
<td>41.512</td>
<td>40.756</td>
<td>98,18</td>
</tr>
<tr>
<td>Mrkva</td>
<td>1.874</td>
<td>1.807</td>
<td>96,42</td>
</tr>
<tr>
<td>Luk crni</td>
<td>5.297</td>
<td>5.258</td>
<td>99,26</td>
</tr>
<tr>
<td>Luk bijeli</td>
<td>1.970</td>
<td>1.864</td>
<td>94,62</td>
</tr>
<tr>
<td>Grašak</td>
<td>1.625</td>
<td>1.653</td>
<td>101,72</td>
</tr>
<tr>
<td>Kupus i kelj</td>
<td>6.525</td>
<td>6.505</td>
<td>99,69</td>
</tr>
<tr>
<td>Paradajz</td>
<td>4.066</td>
<td>3.986</td>
<td>98,03</td>
</tr>
<tr>
<td>Paprika zelena</td>
<td>3.858</td>
<td>3.852</td>
<td>99,84</td>
</tr>
<tr>
<td>Krastavac</td>
<td>3.108</td>
<td>3.155</td>
<td>101,51</td>
</tr>
<tr>
<td>Djetelina</td>
<td>51.570</td>
<td>51.911</td>
<td>100,66</td>
</tr>
<tr>
<td>Lucerka</td>
<td>36.736</td>
<td>37.988</td>
<td>103,41</td>
</tr>
<tr>
<td>Grahorica</td>
<td>249</td>
<td>225</td>
<td>90,36</td>
</tr>
<tr>
<td>Mješavina mahunjača sa travama i žitima</td>
<td>3.332</td>
<td>3.322</td>
<td>99,70</td>
</tr>
<tr>
<td>Travno-djetelinske smjese</td>
<td>26.143</td>
<td>28.703</td>
<td>109,79</td>
</tr>
<tr>
<td>Kukuruz za krmu</td>
<td>15.137</td>
<td>17.062</td>
<td>112,72</td>
</tr>
<tr>
<td>Stočna repa</td>
<td>1.759</td>
<td>1.898</td>
<td>107,90</td>
</tr>
</tbody>
</table>

Procenat poljoprivrednih domaćinstava koja su koriste (obrađuju) zemlju u odnosu na ukupan broj domaćinstava u BiH je 44,10 %.

**Navodnjavanje**


Sistemi za navodnjavanja nisu naročito razvijeni. Zapravo, navodnjavanja se samo 2% od ukupnog obradivog zemljišta, koje iznosi oko 1 123 000 ha, ako se usporedi sa svjetskim prosjekom od 15%. Nestašica vode u vrijeme vegetacijskog perioda je ključni faktor koji ograničava razvoj moderne poljoprivrede. Čak i da je postotak navodnjavanog zemljišta veći, sistemi za navodnjavanje su ozbiljno oštećeni zbog lošeg održavanja i posljedica rata. Prema procjenama, mogućnost navodnjavanja obradivog zemljišta u BiH iznosi oko 155 000 ha, dok se danas navodnjava samo 4 630 ha.

Do 1990. godine u Bosni i Hercegovini navodnjavanjem je bilo obuhvaćeno ukupno oko 11.620 ha, od čega je lokalnim navodnjavanjem van sistema bilo obuhvaćeno oko 3.580 ha, a sistemima za navodnjavanje oko 8.080 ha. Pregled po slivnim područjima dat je u sljedećoj tabeli:
U okviru sistema

<table>
<thead>
<tr>
<th>Naziv područja</th>
<th>Sliv</th>
<th>Ukupna površina (ha)</th>
<th>Navodnjavanje I faza (ha)</th>
<th>Navodnjavanje Ukupno (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ukupno BiH</td>
<td></td>
<td>430.740</td>
<td>21.370</td>
<td>183.600</td>
</tr>
<tr>
<td>Sliv Save</td>
<td>Sava</td>
<td>267.086</td>
<td>12.600</td>
<td>122.700</td>
</tr>
<tr>
<td>Neposredni sliv Save</td>
<td>Sava</td>
<td>201.186</td>
<td>12.600</td>
<td>95.700</td>
</tr>
<tr>
<td>Sliv Drine</td>
<td></td>
<td>5.500</td>
<td>-</td>
<td>1.700</td>
</tr>
<tr>
<td>Sliv Bosne</td>
<td></td>
<td>17.300</td>
<td>-</td>
<td>10.300</td>
</tr>
<tr>
<td>Sliv Vrbasa</td>
<td></td>
<td>5.800</td>
<td>-</td>
<td>1.500</td>
</tr>
<tr>
<td>Sliv Une</td>
<td></td>
<td>37.300</td>
<td>-</td>
<td>13.500</td>
</tr>
<tr>
<td>Sliv Jadranskog mora</td>
<td></td>
<td>163.654</td>
<td>8.770</td>
<td>60.900</td>
</tr>
<tr>
<td>Sliv Neretve</td>
<td></td>
<td>47.261</td>
<td>6.640</td>
<td>29.950</td>
</tr>
<tr>
<td>Sliv Trebišnjice</td>
<td></td>
<td>33.383</td>
<td>2.130</td>
<td>13.250</td>
</tr>
<tr>
<td>Kraška polja jugozapadne Bosne</td>
<td></td>
<td>83.010</td>
<td>-</td>
<td>17.700</td>
</tr>
</tbody>
</table>


Osnovna karakteristika navodnjavanja u sistemima je da je novijeg datuma (iza 1970. godine) i da su njime bile obuhvaćene površine društvenog sektora, relativno male površine i orijentisane na jedan vodozahvat ili resurs. Većina sistema je nefunkcionalna, a uslijed ratnih dejstva su zapušteni i razrušeni ili su svedeni na simbolične površine u obliku lokalnog navodnjavanja.

Pored navedenih sistema, na uređenom zemljištu u blizini vodnih resursa razvilo se lokalno navodnjavanje gdje vlasnici vlastitim sredstvima obezbjeđuju navodnjavanje svojih površina. Zahvat vode vrši se iz bunara ili otvorenog vodotoka u blizini parcele pokretnim pumpama na tečno gorivo, a razvođenje vode vrši se plastičnim ili gumenim crijevima u zemljane brazde iz kojih se navodnjavanje vrši infiltracijom.

U navednoj tabeli, koja je preuzeta iz Okvirne vodoprivredne osnove BiH iz 1994. godine, data je orijentaciona površina koja bi se mogla intenzivno koristiti nakon realizacije vodoprivređnih i drugih zahvata i koju treba navodnjavati (oko 183.600 ha), kao i orijentaciona površina koja može biti dostignuta u dogledno vrijeme (10 godina) kao I faza.

Zbog trenutno ekonomske situacije, teško je prognozirati u kojem periodu je moguće realizovati navodnjavanje na navedenim površinama.

Zakon O Vodama

U toku 2006. godine usvojeni su novi entitetski zakoni o vodama. Zakoni su harmonizirani i usklađeni u velikoj mjeri sa legislativom EU koja se odnosi na vode, a posebno sa Okvirnom direktivom o vodama EU. U potpunosti je ugrađen princip integralnog upravljanja vodama na nivou riječnog bazena u sklopu kojeg je poseban naglasak dat na održivo korištenje voda u različite svrhe.

Politika upravljanja vodama određuje se strategijom upravljanja vodama. Za provođenje strategije upravljanja vodama donose se planovi upravljanja vodama za vodna područja.
Poglavlje "Korištenje voda" daje definiciju korištenja voda, opće upotrebe voda, propisuje mjere za osiguranje kvaliteta vode za piće, uslove za korištenje voda iz izvora i podzemnih voda, ustanovljava obavezu vođenja evidencije o količinama zahvaćene vode. Ovim poglavljem definisana su prava zadruga odnosno udruženja korisnika voda u vezi sa građenjem i korištenjem melioracionih sistema za navodnjavanje i odvodnju, kako slijedi:

(i) U svrhu građenja i/ili korištenja melioracionog sistema za navodnjavanje i/ili odvodnju od interesa za više vlasnika ili korisnika zemljišta, može se osnovati posebno pravno lice (zadruga udruženje i sl.).
(ii) Pravno lice iz stava 1. ovog člana dužno je pribaviti pravo na korištenje vode.
(iii) Pravno lice iz stava 1. ovog člana dužno je osigurati finansijska sredstva za održavanje i rad melioracionog sistema.
(iv) Pravno lice iz stava 1. ovog člana kojem je preneseno pravo na upravljanje i korištenje vodnih objekata dužno je osigurati finansijska sredstva za održavanje i rad melioracionog sistema.
(v) Pravno lice iz stava 1. ovog člana može poslove tehničkog održavanja melioracionog sistema povjeriti pravnomicu registriranom za obavljanje takve djelatnosti.

Učešće javnosti, kao i korisnika melioracionih sistema, kada je u pitanju upravljanje vodama dolazi do izražaja i u radu Savjetodavnog vijeća za vode, u čijem radu učestvuju nevladine organizacije sa vodnog područja (1/3 članova), ali i predstavnici korisnika voda (1/3 članova). Također je omogućeno učešće javnosti i zainteresovanih strana (stakeholdera) kod donošenja planova upravljanja vodama i u postupku donošenja vodnih akata.

Na području BiH uz pomoć međunarodne zajednice u tijeku je implementacija Projekta razvoja male komercijalne poljoprivrede i Projekt podrške i jačanja Udruge za navodnjavanje Popovo polje. U nastavku se daje pregled aktivnosti na implementaciji prvog projekta u FBiH.

Utemeljenje I Razvoj Udruga Korisnika Vode Na Području Fbih Koje Pokriva Projekt IDA 3742 Bos

Jedna od podkomponenata PROJEKTA RAZVOJA MALE KOMERCIJALNE POLJOPRIVREDE (IDA 3742 bos) je razvoj navodnjavanja. Cilj ove podkomponente je osigurati pouzdanu opskrbu vodom poljoprivrednicima putem revitalizacije i izgradnje infrastrukture za navodnjavanje, osigurati održivost sustava putem utemeljenja Udruga korisnika vode i Saveza udruga korisnika vode i pomoći u njihovom osposobljavanju za rad i upravljanje vodom i sustavima za navodnjavanje. Ovaj prikaz podijelili smo na slijedeća poglavlja:

- Rehabilitacija i unapređenje sustava za navodnjavanje
- Razvoj održivog institucionalnog okvira za sektor navodnjavanja zasnovan na udrugama korisnika vode i savezu udruga korisnika vode
- Obuka korisnika vode u cilju razvoja održive institucije za pogon, održavanje i upravljanje sustavima za navodnjavanje
- Ostvarivanje Plana ekološkog monitoringa

1. Rehabilitacija i unapređenje sustava za navodnjavanje

a) Hidromelioracijski sustav u općini Ljubuški

Najznačajniji sustav na kojem je Projekt intervenirao jest Hidromelioracijski sustav u općini Ljubuški. Površina ovog sustava je oko 3000 ha i jedan je od najvećih u Bosni i Hercegovini. Voda za ovaj sustav osigurava se iz rijeka Tihaljina-Mlade-Trebižat, Vrioštice i Stude i raspoređuje putem 14 glavnih kanala do poljoprivrednih parcela. Sustav je bio u velikoj mjeri zapušten, zarastao u vegetaciju a voda je teško dolazila do kraja kanala, a u nekim kanalima nije niti bilo. Revitalizacija je izvršena tako što su izvedeni radovi čišćenja 43 glavne kanale na dužini od 165 km, 13 sekundarnih kanala, betonirano je 2.400 m glavnih kanala, postavljeno 65 tablastih zapornica na potrebnim mjestima, izrađene dvije privremene brane na rijeci Trebižat, sanirano oko 2 km krune nasipa uz rijeku Trebižat i izgrađene dvije obaloutvrde. Ovim radovima uspješno se vodo dovести do svih parcela koje su se ranije navodnjavale. Za ove radove tijekom 2004. i 2005. godine u PIU-u je urađena tenderska dokumentacija, izvršen izbor izvođača i nadzora, praćeni radovi i izvršen konačan obračun radova.
Dio sredstava za rehabilitaciju i unapređenje HMS-a u općini Lubuški namjenjen je za interventne radove po potrebi i izboru Udruga korisnika vode i za one udruge koje su uznemirena u svom razvoju i koje se oslanjaju na svoje članstvo. Ovi radovi pored svoje nesumnjive koristi za funkcionalnost hidromelioracijskog sustava i rješavanja nekih prioritetnih problema na infrastrukturni udruge, daju stimuli uspostavljanju funkcioniranja udruga kao samoodrživih zajednica. Uvjet za korištenje ovih sredstava je funkcioniranje udruge sukladno Statutu, brojnost članstva udruge i izbor radova u radovima u iznosima od 30% do 50% sredstava koje ulaže Projekt. U 2006. godini izvršene su sve pripreme, uređena tenderska dokumentacija, izvršen izbor isporučitelja materijala, reguliran odnos udruga s Općinama i ove udruge po potrebi i izbor radovi za 6 UKV. Ovi radovi su završeni s izuzetkom kod jedne udruge gdje su još u tijeku. Početkom 2007. godine izvršene su pripreme i ugovoreni radovi za narednih 5 UKV s tim da se ulaganja u interventne radove po potrebi i izboru udruga nastavljaju paralelno s ispunjavanjem uvjeta koji su postavljeni pred udruge. Pravo upravljanja i obveza održavanja izgrađenih dionica prenesena je od strane općine na udruge.

b) Hidromelioracijski sustav u općini Stolac


Za ovaj i svaki objekt koji je rađen na širem području Dubrava prethodno su prikupljeni podaci o području, objekti su prošli kroz procesi vrijednovanja, formiranja inicijativnih odbora za utemeljenje udruga korisnika vode, utemeljenja udruga korisnika vode, potpisivanja memoranduma o razumijevanju s općinama, potpisivanja memoranduma o razumijevanju s PIU-om, pribavljanja projektne dokumentacije, reguliranja međusobnih odnosa članova UKV, potpisivanja međusobnih sporazuma i sporazuma s općinama, donošenja internih akata na skupština UKV, natječaja za radove i nadzor, izvođenja objekata do internog tehničkog prijama.

c) Hidromelioracijski sustav na Popovu polju (Sektor 6-Hutovo)


d) Hidromelioracijski sustav "Greda" Crnići, Stolac

Ovaj sustav izgrađen je na površini od oko 40 ha. Sustav se snabdjeva vodom iz bušenog bunara i vodospreme. Udruga korisnika vode "Greda" sama će voditi brigu o osiguranju dodatnih količina vode za navodnjavanje. Sustav je završen i pušten u pogon u siječnju 2007. godine.

e) Hidromelioracijski sustav "Dalmatinka" Oplići, Čapljina

Urađena je revitalizacija i proširenje postojećeg sustava, ugrađena nova crpka u bunar u blizini rijeke Bregave, razvodna mreža dužine 3,4 km koja pokriva površinu od 5-8 ha. Brigu o održavanju, pogonu i upravljanju sustavom vodi UKV "Dalmatinka". Sustav je izgrađen i pušten u pogon.

f) Hidromelioracijski sustav "Bistra voda" Bjelojevići, Stolac

Urađena je crpna stanica, vodosprema i razvod koji pokriva 3 ha poljoprivrednog zemljišta. Brigu o održavanju, pogonu i upravljanju sustavom vodi UKV "Bistra voda". Sustav je izgrađen i pušten u pogon.
g) Kišna mikroakumulacija "Gaj" Pijesci, Mostar

Izgrađena je armirano betonska mikroakumulacija zapremine 500 m3 na području bezvodnog naselja Pijesci s odgovarajućom betonskom slivnom površinom. Mikroakumulacija će služiti za interventno navodnjavanje oko 5 ha poljoprivrednih površina i napajanje stoke. Uz mikroakumulaciju je izgrađen i bazen za pranje stoke. Brigu o održavanju, pogonu i upravljanju mikroakumulacijom vodi UKV "Gaj". Mikroakumulacija je završena i puštena u pogon.

h) Kišna mikroakumulacija "Baščine" Pijesci, Mostar

Izgrađena je armirano betonska mikroakumulacija zapremine 500 m3 na području bezvodnog naselja Pijesci s odgovarajućom betonskom slivnom površinom. Mikroakumulacija će služiti za interventno navodnjavanje oko 5 ha poljoprivrednih površina i napajanje stoke. Brigu o održavanju, pogonu i upravljanju mikroakumulacijom vodi UKV "Baščine". Mikroakumulacija je završena i puštena u pogon.

i) Hidromelioracijski sustav "Škripine" Aladinići, Stolac

Urađena je vodosprema, cijevni razvod u dužini od oko 1000 m i ugrađena crpka u postojeći bušeni bunar. Površina za navodnjavanje je oko 3 ha s mogućnosti povećanja za još oko 2 ha. Brigu o održavanju, pogonu i upravljanju sustavom vodi UKV "Škripine". Sustav je izgrađen i pušten u pogon.

j) Hidromelioracijski sustav "Cvrke" Aladinići, Stolac

Urađena je vodosprema, cijevni razvod u dužini od oko 1500 m i ugrađene 2 crpke u postojeće kopane bunare. Površina za navodnjavanje je oko 3 ha s mogućnosti povećanja za još oko 4-5 ha. Brigu o održavanju, pogonu i upravljanju sustavom vodi UKV "Cvrke". Sustav je izgrađen i pušten u pogon.

k) Hidromelioracijski sustav "Prokos" Crnići, Stolac

Urađena je vodosprema i cijevni razvod u dužini od oko 260 m. Površina za navodnjavanje je oko 2 ha s mogućnosti povećanja za još oko 2 ha. Brigu o održavanju, pogonu i upravljanju sustavom vodi UKV "Prokos". Sustav je skoro završen.

l) Hidromelioracijski sustav "Izvor" Crnići, Stolac

Urađena je vodosprema i cijevni razvod u dužini od oko 500 m i ugrađena crpka u postojeći bunar. Površina za navodnjavanje je oko 3 ha s mogućnosti povećanja za još oko 2-3 ha. Brigu o održavanju, pogonu i upravljanju sustavom vodi UKV "Izvor". Sustav je završen i pušten u pogon.

m) Filter stanica uz crpnu stanicu "Most" u Sektoru Ravno


n) Sanacija kišne mikroakumulacije "Šarića lokva" u naselju Gagrice i "Bivolje brdo" u naselju Bivolje brdo

USAID je u suradnji s Svjetskom bankom financirao izgradnju dvije kišne mikroakumulacije na mjestu ranijih lokava: Šarića lokva zapremine 1300 m3 i Bivolje brdo zapremine 4500 m3. Ove akumulacije su izvedene tako što su ranije lokve produbljene i obložene PEHD folijom. Objekti su izvedeni s tehničkim nedostacima tako da im je potrebna opravka. Početak radova planiran je u 2007. godini nakon aktiviranja dvije postojeće udruge korisnika vode.
2. Studija o cijenama vode za navodnjavanje

Da bi se ostvarila samoodrživost sustava za navodnjavanje nužno je vrednovati sve sastavne dijelove u tom lancu, pa tako i vodu. Razrada postupaka i faktora koji utiču na cijenu vode za navodnjavanje urađena je u Studiji o cijenama vode za navodnjavanje koja je završena 2004. godine.

3. Studija - Mjerenje protoka vode na HMS Ljubuški


4. Studija tehničke podrške udrugama korisnika vode na HMS-u Ljubuški


Razvoj održivog institucionalnog okvira za sektor navodnjavanja zasnovan na UKV i SUKV

Uspostavljanje udruga potrošača vode na projektnom području i njihov aktivni rad jedna je od karika uspješne poljoprivredne proizvodnje. Uspješne udruge korisnika vode su garant održivosti mjera u osiguranju vode za poljoprivrednu proizvodnju. One, pored posrednih koristi kao što su: prednost udruživanja u interesne grupe, podizanje kolektivne svijesti, podizanja povjerenja među sredstva za njihovo financiranje ishranjuje individualnih potreba i dr. daju rješenje kontinuiteta održavanja i upravljanja sustavima za navodnjavanje i odvodnjavanje. Udruge trebaju na sebi preuzeti pogon, održavanje i upravljanje vodom, dijelovima sustava ili cjelokupnim malim sustavima koji im trebaju biti ustupljeni od strane dosadašnjih vlasnika.

Sadašnja situacija na hidromelioracijskim sustavima u pogledu vlasništva nad objektima za navodnjavanje, održavanja i upravljanja tim objektima, sakupljanja sredstava za njihovo financiranje je takva da su objekti u vlasništvu Županije, Općina je zadužena za upravljanje i održavanje objekata sustava, izvorni prihodi za financiranje hidromelioracijskog sustava nema jer korisnici sustava momentalno ne plaćaju propisane naknade za podmirenje troškova osiguranja sustava za navodnjavanje i troškove za osiguranje odvodnje suvišne vode. Znatno povoljnija situacija je s malim sustavima na Dubravskom platou gdje su dijelovi sustava u privatnom vlasništvu.

Zakonska problematika

Svih 26 Udruga korisnika vode (UKV) i jedan Sektor koje su do sada utemeljene i registrirane utemeljene su po Zakonu o udrugama i zakladama iz 2001. godine i temelje se na potpunoj dobrovoljnosti svojih članova. UKV nemaju potporu u važećem Zakonu o vodama iz 1998. godine. Ova problematika razmatrana je na više sastanaka, studijskih putovanja i radionica koje su rezultirale preporukama za njeno rješavanje.
Novi zakon o vodama koji je donesen krajem 2006. godine, omogućuje da se za korištenje melioracijskog sustava može utemeljiti udruga i da se na istu način može prenijeti pravo upravljanja i korištenja objekata sustava s tim da je udruga dužna osigurati financijska sredstva za održavanje i rad melioracijskog sustava kao i pravo korištenja vode. Temeljna značajka ovog zakona, kada je u pitanju navodnjavanje i odvodnja, jeste da se omogućava prijenos održavanja i upravljanja hidromelioracijskim sustavima na udruge, zadruge i sl., zatim da udruge za korištenje vode moraju pribaviti vodne akte i da moraju osigurati financijska sredstva za upravljanje i održavanje sustava.

Zbog toga bi udruge trebale, iako Zakon još nije stupio na snagu, poduzeti korake da se izvrši prijenos održavanja i upravljanja dijelova hidromelioracijskog sustava na UKV.

Nakon što dobiju vodne akte i prava upravljanja, pogona i održavanja infrastrukture navodnjavanja udruge bi ostvarile sva potrebna prava i preuzele obveze koje im omogućavaju napredak i razvoj i osigurane održivosti sustava. Ostaje potreba za stalnim unutrašnjim jačanjem udruga u smislu postizanja što bolje organizacije, efikasnosti, ekonomičnosti i financijskog stanka.

Treba napomenuti da se novi Zakon o vodama prema udrugama korisnika vode odnosi kao prema svakom drugom korisniku vode. Zakon se ne bavi načinom na koji će udruge dobiti pravo korištenja i upravljanja nad vodnim objektima i na koji način će osigurati financijska sredstva za održavanje i rad sustava od članova i ne članova udruga, nadzorom nad radom udruga osim u poštovanju datih vodnih akata, kontrolom rekonstrukcije i izgradnje infrastrukture navodnjavanja i odvodnje osim u poštovanju vodnih akata koji se daju za tu svrhu, davanju javnih ovlasti udruga i savezu udruga, obvezama korisnika vode da prijave svoje potrebe vode. Sve to je ostavljeno udrugama i savezu udruga da na temelju dobrovoljnosti i osobnih interesa sami donesu pravila koja će i poštovati. Kao poseban problem javlja se odnos prema ne javnim ovlastima udruga a na širem području, posebno Zakon o vodama nije predviđao javne ovlasti udrugama korisnika vode za navodnjavanje, nije uspostavio sisteme koji se bave načinom održavanja i upravljanja nad melioracijskim sustavima na udruge.

Novi zakon o vodama prema udrugama korisnika vode odnosi kao prema svakom drugom korisniku u druga udrugama korisnika vode odnosi kao prema svakom drugom korisniku vode. Zakon se ne bavi načinom na koji će udruge dobiti pravo korištenja i upravljanja nad vodnim objektima i na koji način će osigurati financijska sredstva za održavanje i rad sustava od članova i ne članova udruga, nadzorom nad radom udruga osim u poštovanju datih vodnih akata, kontrolom rekonstrukcije i izgradnje infrastrukture navodnjavanja i odvodnje osim u poštovanju vodnih akata koji se daju za tu svrhu, davanju javnih ovlasti udruga i savezu udruga, obvezama korisnika vode da prijave svoje potrebe vode. Sve to je ostavljeno udrugama i savezu udruga da na temelju dobrovoljnosti i osobnih interesa sami donesu pravila koja će i poštovati. Kao poseban problem javlja se odnos prema ne javnim ovlastima udruga a na širem području, posebno Zakon o vodama nije predviđao javne ovlasti udrugama korisnika vode za navodnjavanje, nije uspostavio sisteme koji se bave načinom održavanja i upravljanja nad melioracijskim sustavima na udruge.

**Utemeljenje UKV i Saveza udruga korisnika vode za navodnjavanje (SUKV)**

Prijene nego što se pristupilo formiranju UKV osoblje PIU-a zaduženo je, uz pomoć stranog članova i delegatima udruge, proučiti pravila udruge u smislu postizanja što bolje organizacije, efikasnosti, ekonomičnosti i financijskog stanka.

Po uzoru na normativne akte španjolskih udruga za navodnjavanje i uz neophodno prilagođavanje našim zakonima a posebno zakonima o udrugama i savezu udruga i savezu udruga, udrugama korisnikima vode za navodnjavanje, nije uvođeno i regulisana prava udruga za korištenje melioracijskog sustava za upravljanje i održavanje sustava. Zbog toga bi udruga trebale, iako Zakon još nije stupio na snagu, poduzeti korake da se izvrši prijenos održavanja i upravljanja dijelova hidromelioracijskog sustava na UKV.
Poslije temeljitih priprema dana 15.3.2007.godine formiran je Savez udruga korisnika vode na području HMS-а Ljubuški. Udruge su izabrale svoje zastupnike u Skupštinu SUKV a na Skupštini je usvojen Statut Saveza. SUKV je tijelo koje će voditi brigu o HMS-u na odgovarajućoj tehničkoj razini, sagledavati i brinuti se o interesima HMS-a kao cjeline, u slučajevima različitih interesa pojedinih udruga iznalaziti rješenja vezana za vodu za navodnjavanje, održavati kontakt s Agencijom za vodno područje, županijskim i općinskim vlastima, omogućiti optimzno navodnjavanje svim udrugama pravičnom raspodjelom raspoložive vode iz rijeke na glavne kanale, realizirati funkciju predstavljanja svih udruga na HMS-u u zajedničkim tijelima na Županijskoj, Federalnoj i Državnoj razini. Sličan SUKV biti će formiran i na Dubravskom platou.

**Povjerenstvo za pomoć udrugama na HMS-u Ljubuški**

U tijeku priprema za početak provedbe Projekta na sastancima s rukovoditeljima Županije ZH i Općine Ljubuški zaključeno je da se formira Povjerenstvo za podršku udrugama i da se u njega delegiraju članovi koji će pomoći u upravljanju UKV na području općine Ljubuški. Povjerenstvo je nakon formiranja usvojilo svoj plan aktivnosti, održalo 17 sastanaka u periodu od 27.8.2004. godine do danas prateći provedbu svog dinamičkog plana. Povjerenstvo je u svakoj prilici vršilo promociju UKV i lobiranje i obuku usmjerenu na upravljačke strukture. Ovo je bilo potrebno da se općina aktivnije uključi u sve aspekte Projekta i da radi u zajedničkom interesu i osiguranju transfera upravljanja navodnjavanjem na udruge i savez udruga kao i uspostavljanje održivih institucija koje brzo reagiraju prema svojim korisnicima. Na širem području Dubravskog platoa taj posao s uspjehom su obavili djelatnici Terenskog ureda.

**JP za "Vodno područje slivova Jadranskog mora", Mostar**

JP je bilo upoznato s Projektom i aktivno je učestvovalo na više sastanaka, radionica i seminara i studijskom putovanju u Španjolskoj. U svakoj prilici s njihove strane je pružena puna podrška razvoju UKV, postizanju održivosti melioracijskih sustava, osiguravanju potrebnih količina vode za udruge i savez udrugama a posebno u izradi njihovih planova pogona i održavanja, mjerenje vode, analize vode, tehničke savjete udrugama i sl. To se, nažalost, nije ostvarilo tako da je to poduzeće ostalo po strani događanja na HMS-u. Ukoliko se ovakvo stanje nastavi, sve nabrojane aktivnosti morati će preuzeti udruge i savez udruga.

**Vodoprivredno poduzeće "Ljubuški", Ljubuški**

Vodoprivredno poduzeće, prema Projektu, na najvećem hidromelioracijskom sustavu koji pokriva Projekt, trebalo je biti na usluzi udrugama i biti odgovorno za svakodnevne manipulacije na sustavu, održavanje glavnih kanala, osiguranje potrebnih količina vode za udruge, pomoć u izradi njihovih planova pogona i održavanja, mjerenje vode, analize vode, tehničke savjete udrugama i sl. To se, nažalost, nije ostvarilo tako da je to poduzeće ostalo po strani događanja na HMS-u. Ukoliko se ovakvo stanje nastavi, sve nabrojane aktivnosti morat će preuzeti udruge i savez udruga.

**Cijena vode za navodnjavanje i vodne naknade**

U Studiji o cijenama vode za navodnjavanje navedeni su svi sastavni dijelovi cijene vode za navodnjavanje koji osiguravaju samoodrživost sustava. Preporuke i saznanja iz te studije još se ne primjenjuju u potpunosti na terenu, a cijenu vode sada čini manji broj faktora od potrebnog. Djelatnici terenskih ureda prate i prikupljaju podatke relevantne za formiranje cijene vode za navodnjavanje na području Ljubuški i Dubravskom platou. Većina UKV na svim skupštinama donijeli su odluku o plaćanju vodne naknade po jedinici površine navodnjavanog zemljišta ili po m3 isporučene vode. Prihodi sredstva trebala bi pokriti troškove pogona, održavanja i upravljanja sustavima ali su ona, za sada, nekoliko puta manja od potrebnih. Period postizanja punih cijena kako bi troškovi cijene vode potpuno odražavali troškove sustava može potrajati nekoliko sezona. Na širem području Dubravskog platoa situacija u tom pogledu je nešto drugačija jer se uglavnom radi o malim sustavima s crpljenjem vode pa je cijena vode približnje ekonomskoj cijeni.
Obuka korisnika vode u cilju razvijanja održive institucije za pogon, održavanje i upravljanje sustavom za navodnjavanje

Obuka je predviđena da pomogne udrugama i odgovarajućim strukturama da se aktivno uključu u razvoj održivog navodnjavanja a njena provedba je predviđena putem studijskih putovanja, radionica, treninga trenera, promotivnih seminara i putem podrške udrugama održavanjem tečaja koji uključuju učenje i savladavanje vještina poboljšavanja navodnjavanja, rješavanja sukoba, upravljanje i administraciju u UKV, financijsko poslovanje, operativne poslove, poslove pogona i održavanja.

Studijska putovanja

U 2005. godini u posjeti Španjolskoj i udrugama za navodnjavanje bile su ključne osobe od interesa za Projekt. Na mjestu događanja ekipa je upoznata s konceptom koji funkcionira u Španjolskoj i koji se s modifikacijama implementira kod nas.

U vremenu od 11. do 15. prosinca 2005. godine organizirano je studijsko putovanje u Makedoniju i udrugama za navodnjavanje koje Vlada Republike Makedonije provodi kroz Projekt rehabilitacije i restrukturiranja koji financira Svjetska banka. Ovo studijsko putovanje kome su nazočili PIU inženjer za navodnjavanje, djelatnici Terenskih ureda u Ljubuškom i Dubravama, predstavnici udrugama za navodnjavanje s projektom održivog vodnog područja, bilo je veoma pozitivno iskustvo za nastavak implementacije pristupa navodnjavanju u ovom Projektu. Neka iskustva s ovog putovanja, posjete resornom ministarstvu i udrugama za navodnjavanje kada se radi o načinu utemeljenja UKV, izboru organska upravljanja, organizaciji rada UKV, isporuci vode do poljoprivrednih proizvođača, naplati vode i dr. primijeni su kasnije u našem projektom području.

U tijeku 2007. godine planirano je studijsko putovanje u Španjolsku za predstavnike UKV i SUKV.

Seminari

U periodu od 5. do 28. veljače 2004. godine održan je u Trebinju seminar s temom Održivo upravljanje vodom za navodnjavanje. Seminar je organiziran od strane OTC-a tehničkog ureda španjolske agencije za međunarodnu suradnju i isti je bio na visokoj stručnoj razini. Ponuđeni pisani materijali bili su temelj za daljnji rad na UKV.

U vremenu od 16. do 18. srpnja 2004. godine održan je seminar u Neumu u također u OTC-a i resornih ministarstava FBiH i RS. Seminaru su prisustvovali i predstavnici resornih ministarstava, Javnih vodoprivrednih poduzeća, PIU-a i UKV. Rezultat seminara bile su preporuke nadležnim organima o potrebnim promjenama zakonske regulativne.

U vremenu od 5. do 7. lipnja 2005. godine u organizaciji OTC-a održan je seminar u Neumu s temom Osnovne vještine za korisnike vode za navodnjavanje koji je pomogao slušateljima da utvrde i prošire znanja o udrugama za navodnjavanje.

Seminar u Neumu u organizaciji MPDL-a koji se održao 10. i 11. 5.07 biti će također podjednako doprinos vrednovanju napretka u razvoju UKV i SUKV i kao i prilika za dobijanje nove podrške Ministarstava za vode i njihovih Agencija za vodonosne područja.

Trening trenera

U vremenu od 15. do 17. srpnja u terenskom uredu u Ljubuškom održan je trening trenera za djelatnike ureda. Trening je držao PIU inženjer za navodnjavanje i bio je namijenjen obuci dvojice djelatnika ureda. Cilj ovog treninga je bio da se dodatno osposobe djelatnici terenskog ureda da mogu u svakoj prilici i kontinuirano djelovati na području HMS-a Ljubuški i vrsiti obuku. Trening je obuhvatio slijedeće teme:

- Upoznavanje s Dokumentom PRMKP
- Upoznavanje s javnim zagovaranjem
- Upoznavanje s Zakonom o udrugama i Zakonom o vodama
- Upoznavanje s temama seminara u Trebinju i Neumu
-Dogovor o obuci dužnosnika i članstva UKV prema izrađenom programu

U vremenu od 1. do 2. lipnja 2006. godine u Ljubuškom je održan trening trenera za širi skup slušatelja. Prisustvovali su djelatnici terenskih ureda u Ljubuškom i Dubravama i zainteresirani članovi UKV s područja Ljubuškog i Dubrava. Tečaj je držao Mome Mladenovski, makedonski ekspert za razvoj Vodnih zajednica, sve u skladu sa ugovorom i projektnim zadatkom dogovorenim sa APCU Banja Luka.

Program tečaja obuhvatio je slijedeće segmente:

-Organizacijske karakteristike UKV
-Faktore održivosti UKV
-Izrada akcijskog plana za rad UKV
-Upravljanje u UKV i
-Procjenu i planiranje radova u UKV.

Pored izlaganja programa, urađeno je i šest konkretnih vježbi primjene izloženih sadržaja kroz rad u malim grupama i njihovu prezentaciju.

Tečaj je bio uspješan, tim prije što je najmanje sedam osoba osposobljeno i spremno da nastave slične treninge s dužnosnicima i članovima UKV.

**Radionice**

Dana 22. travnja 2004. godine u Općini Ljubuški uz prisustvo čelnih ljudi općine, u organizaciji PIU-a, održana je radionica s temom o izboru modela udruga korisnika vode. Analizom postojećeg stanja upravljanja HMS-om, mogućih rješenja po važećem Zakonu o vodama, modela upravljanja vodama po Projektu, najpovoljnijih rješenja u danom okruženju došlo se do zaključka o opravdanosti uspostavljanja udruga korisnika vode i potrebi što brže implementacije Projekta.

Dana 1. rujna 2005. godine održana je radionica u terenskom uredu u Ljubuškom za tajnike UKV. Prisustvovalo je 7 tajnika UKV. Radionica je održana s ciljem osposobljavanja tajnika za uspostavljanje administracije UKV.

Dana 6. listopada 2005. godine održana je radionica u terenskom uredu u Ljubuškom za predsjednike UKV s temom Rad tijela UKV i priprema za interventne radove. Prisustvovalo je sedam predsjednika.

**Podrška Udrugama korisnika vode i Savezu udruga**

**Podrška PIU inženjera**

PIU inženjer je pripremio prijedloge propisa za udruge i savez udruga, pogonske priručnike, planove obuke dužnosnika udruga i članstva udruga, plan obuke trenera, program rada domaćih konsultanata za obuku i učestvovao u provedbi obuke. Uradio je prijedloge Statuta UKV, Statuta sektora UKV, Statut SUKV, Priručnike o organizacijskim karakteristikama UKV, upravljanju UKV, financijskom upravljanju, održivosti UKV, o radovima i održavanju objekata UKV, o vođenju sastanaka, sakupljanju vodne naknade, Pravilnike o radu upravnog odbora UKV, radu upravnog odbora sektora UKV, o uvjetima i načinu funkcioniranja sustava za navodnjavanje, Godišnji financijski program UKV, plan rada UKV, Procjena troškova HMS-a, razne urene zapisnike, izlaganja na skupštinama UKV, odluka i dr.

**Podrška djelatnika Terenskih ureda**

Djelatnici terenskih ureda u Ljubuškom i Dubravama ispunjavajući svoje radne zadatake iz Programa rada terenskog osoblja, nakon osobnog proučavanja preporučenih tema i materijala radili su na kontinuiranom obuci dužnosnika i članstva udruga koristeći sve vidove kontakta s udrugama: sastanke upravnih odbora, zasjedanja skupština, radionice, osobne kontakte s članovima i dr. Obuka se vrši kao kontinuirani proces posebno za upravljačke strukture, pogon i održavanje, financije i rješavanje konflikata za odgovarajuće osoblje svih registriranih udruga.
Obuka UKV od strane domaćih konsultanata

Na temelju urađenog projektnog zadatka i Programa obuke za domaća profesionalna predavače raspisan je natječaj i izvršen izbor konsultanata nacionalnu tehničku pomoć. Provedba obuke je u tijeku. Predavači su uradili svoje materijale za obuku i trening a imaju i tiskane priručnike o svim segmentima o kojima se držati obuka.

5.3.7. Međunarodna pomoć u obuci

Obuka od strane međunarodnih eksperata je predviđena u 2007. godini a namjenjena je prvenstveno za obuku Saveza udruga korisnika vode vezano za funkciju koja se očekuje od Saveza.

Ostvarivanje Plana ekološkog monitoringa

Monitoring kvalitete vode i tla


Ostvarivanje monitoringa obavljen je program monitoringa i ugovaranje a izvedba je u tijeku. Prati se kvaliteta vode izvora za navodnjavanje a tlo se analizira na više lokaliteta.

Monitoring protoka i potrošnje vode

Ovaj monitoring još nije počeo jer nisu ugrađene mjerne letve i mjerne naprave za kontinualno mjerenje protoka i potrošnje vode. Nakon nabavke malog hidrometrijskog krila i priručne opreme izvršena je obuka djelatnika terenskih ureda u korištenju naprave i mjerenje protoka vode a periodično se serije mjerenja protoka vode na glavnim kanalima sustava. Podaci o mjerenjima protoka vode na tim karakterističnim profilima stavljaju se u bazu podataka. Mjerenja hidrometrijskim krilom daju važne podatke za raspodjelu vode na HMS-u i služe za kontrolu raspodjele do konačnog uspostavljanja mjerenja protoka na HMS-u čije izvođenje je planirano u 2007. godini.

Preporuke i Zaključci

1. Treba donijeti strateške dokumente o razvoju poljoprivrede, integrirajuju BiH u EU, harmonizirati propise s EU. Tako će se stvoriti preduvjeti za realizaciju ekspanzije navodnjavanja i omogućiti visoka i stabilna proizvodnja poljoprivrede.

2. Treba nastaviti sa projektima rekonstrukcije postojećih sistema za navodnjavanje (projekt Vlade Kraljevine Španije u Popovom polju, projekt razvoja male komercijalne poljoprivrede U FBiH i RS i dr.).

3. Treba kontinuirano raditi na senzibilizaciji korisnika vode za navodnjavanje i lokalnih vlasti u cilju održivosti i napredka UKV.

4. Potrebno je poboljšati legislativu kako bi se stvorili bolji uvjeti za razvoj UKV i navodnjavanja u cjelini, izdavanje potrebnih vodnih akata, ubiranje naknada za korištenje voda i provođenje inspekcijske kontrole korisnika.

5. Maksimalno koristiti sredstva iz programa subvencija za izgradnju novih i proširenje postojećih sistema za navodnjavanje.
Nacionalni Projekt Navodnjavanja I Gospodarenja Poljoprivrednim Zemljištem I Vodama U Republici Hrvatskoj

Ana Dobrinic and Vedran Zabka

Polazišta

S obzirom na prirodne potencijale Republike Hrvatske, a to su kvaliteta tla i bogati vodni resursi uz klimatske pogodnosti, navodnjavanje se ne provodi u onolikoj mjeri kolike su stvarne mogućnosti, važnost i potrebe. Prema veličini navodnjavanih površina od 9264 ha ili 0,86% korištenih poljoprivrednih površina, Republika Hrvatska se nalazi na jednom od posljednjih mjesta u Europi.

Nekonkurentnost današnje poljoprivrede posljedica je niske tehnološke razine proizvodnje, usitnjenosti proizvodnih parcela i niskih prinosa. Učestale su pojave suša, čega se štete u poljoprivredi procjenjuju u milijardama kuna, a istovremeno se nedovoljno navodnjavaju poljoprivredne površine i pri tome koristi zanemariv dio vodnog potencijala.


Očekivani rezultati

Očekuje se da će mjere sustavnog organiziranja infrastrukture u poljoprivredi, okrupnjavanja poljoprivrednih površina i uvođenja navodnjavanja i novih tehnologija proizvodnje potiči i učinkovitiju poljoprivrednu proizvodnju. Time će se potaknuti promjena strukture proizvodnje uvođenjem dohodovnijih kultura koje danas većinom uvozimo, te će projekt u konačnici rezultirati povoljnim makroekonomskim učinkom.

Nacionalni okvir projekta

Postojeće stanje poljoprivrede, poljoprivrednog zemljišta i zemljišne politike

Hrvatsku poljoprivredu obilježava višegodišnji pad proizvodnje, neuravnotežena ponuda i potražnja, stalnost negativne vanjskotrgovinske bilance i postupno smanjenje udjela u BDP (1999. - udio 11,58%, a 2003. - udio 9,93%). Stoga i gospodarski pokazatelji ukazuju na neučinkovito korištenje raspoloživih resursa, spor obrt kapitala i pad proizvodnosti rada u poljoprivredi.

Kretanja na domaćem i svjetskom tržištu poljoprivrednih proizvoda ne idu u prilog povećanju proizvodnje u RH. Usmjerene k održivoj poljoprivredi i stavljanje sve većeg težišta na održivo upravljanje prirodnim resursima u EU u nas će se odraziti na način da će svako planirano povećanje proizvodnje biti praćeno s velikom pozornosću. Prema podacima Državnog zavoda za statistiku u 2003. godini zasijano je ukupno 1,080 milijuna hektara oranica i vrtova (74% ukupnih površina oranica i vrtova). U strukturi zasijanih površina žita sudjeluju s 64,1%, uljano sjemenje i plodovi s 8,8%, krumpir s 5,8%, ostalo povrće s 6,0%, šećerna repa s 2,6%, krmeno bilje s 11,1%, duhan 0,5% i aromatično bilje s 0,2%.
Prevladavajući dio agrarne strukture čine obiteljska poljoprivredna gospodarstva, koja posjeduju približno 80% zemljišta. Više od 70% tih gospodarstava ima manje od 3 ha i to u pravilu vrlo usitnjenih poljoprivrednih površina. Čak i među onima koji imaju veće površine malo je vitalnih i tržišno usmjerenih gospodarstava koja bi se u sadašnjim okolnostima mogla ravnopravno nositi s uvoznom konkurencijom. Prosječna površina korištenoga poljoprivrednog zemljišta iznosi 3,2 ha. Poljoprivredna kućanstva koriste u prosjeku 1,9 ha, a poslovni subjekti 159,2 ha.

Za ostvarivanje ekonomične i konkurentne proizvodnje imperativ je na:

• Unapređenju strukture poljoprivrednih gospodarstava okupnjevanjem poljoprivrednog zemljišta,
• poduzimanju sustavnih mjera uređenja poljoprivrednih površina, što uključuje i izgradnju sustava za navodnjavanje,
• razvijanju poticajnog zakonodavnog i institucijskog okvira za sustavno i dosljedno provođenje politike gospodarenja poljoprivrednim zemljištem i vodama s ciljem povećanja proizvodnosti i održivog upravljanja prirodnim resursima.

Razlozi, potrebe i mogućnosti NAPNAV-a

U Republici Hrvatskoj danas navodnjavaju relativno male poljoprivredne površine u odnosu na potrebe i mogućnosti. Bogati vodni potencijal i plodna tla ne koriste se dovoljno. Prosječni prinosi prije svega povrćarskih, voćarskih ali i ratarskih kultura su niski, te osciliraju kroz godine što se prvenstveno povezuje s pojavom suša. Suše se u Hrvatskoj javljaju u prosjeku svake treće do pete godine, a ovisno o intenzitetu i dužini trajanja mogu smanjiti urode raznih kultura od 20-70%. Posebno se ističe suša iz 2000. i 2003. kada je potvrđena šteta u poljoprivredi iznosila više od 3,4 milijarde kuna.

Navodnjavanje je jedna od mjera kojom se štete od suše mogu smanjiti, a u nekim područjima i potpuno izbjeći. Redukcije prinosova poljoprivrednih kultura uzgajanih bez navodnjavanja na području RH iznosi u prosječnim klimatskim uvjetima od 10 - 60 %, a u sušnim i do 90% od biološkog potencijala, ovisno o kulturi, tipu tla i području. Pored toga, mjesta navodnjavanja u poljoprivredi susjednih zemalja dovoljni su argumenti za tvrđnju o boljoj perspektivi i mjestu ove mjere u našoj poljoprivredi i gospodarstvu općenito.

Jedno od važnih polazišta za planiranje navodnjavanje jest utvrđivanje raspoloživosti i kvalitete vodnih resursa. Danas se u Hrvatskoj za sve namjene zahvati manje od 1% obnovljivih vodnih resursa Kada se radi o racionalnom gospodarenju vodnim resursima za potrebe navodnjavanja tada se to prvenstveno odnosi na stvaranje uvjeta za osiguranje zaliha vode za navodnjavanje.

Kad se radi o zemljišnim resursima, utvrđeno je da Hrvatska raspolaže s oko 2,9 milijuna ha poljoprivrednog zemljišta, od čega je 244 tisuće ha površina pogodno za navodnjavanje, as manjim ograničenjima i više od 500 tisuća ha.

Ciljevi NAPNAV-a

Opći ciljevi NAPNAV-a kao strateške podloge za njegovo provođenje:

• analizirati i kvantificirati potencijale za sustavno uvođenje navodnjavanja u Republici Hrvatskoj;
• definirati prava i obveze svih sudionika u sustavu;
• dokument bi trebao biti kvalitetna osnova za planiranje uvođenja sustava za navodnjavanje, izgradnju infrastrukture i realizaciju planova proizvodnje poljoprivrednih kultura u novim uvjetima organizirane i nadzirane primjene navodnjavanja.

Posebni ciljevi NAPNAV-a:

1. Kratkoročni: - izrada županijskih planova;
- izgradnja pilot-projekata navodnjavanja.
2. Dugoročni: - pregled i rangiranje daljnjih projekata na razini države za provedbu navodnjavanja;
- definiranje organizacije i statusa institucija za planiranje, financiranje, izvođenje i praćenje projekata;
- prijedlog dinamike sustavnog uvođenja navodnjavanja u RH do 2020. godine.

Projektne aktivnosti

**Definiranje kriterija za određivanje prioriteta**

*Rangiranje područja prema prioritetima na nacionalnoj razini:*


![Karta prioritetnih područja za navodnjavanje u Republici Hrvatskoj](image)

**Karta prioritetnih područja za navodnjavanje u Republici Hrvatskoj**

*Određivanje prioriteta u postupku nominacije projekata za izvođenje:*

U postupku rangiranja prioriteta nominiranih projekata, pored kriterija raspoloživosti prirodnih resursa razmatrat će se i uvažavati i sljedeći kriteriji:

- analiza ekonomske isplativosti (profitabilnosti);
- relativno povećanje prihoda po jedinici površine;
- sufinanciranje;
- sociološki kriteriji (broj gospodarstava ili drugih korisnika uključenih u projekt, mogućnosti zapošljavanja, razvoj ruralnih područja, i dr.);
- stupanj uređenosti površina koje se planiraju navodnjavati;
- suglasnosti korisnika.
Nominiranje, vrednovanje i praćenje provedbe Projekta

Veličina sustava i potencijalni korisnici:
Kroz NAPNAV su definirane i vrste sustava za navodnjavanje te njihova veličina, a što je u direktoj vezi sa potencijalnim korisnicima. Danas posjedi u Hrvatskoj pripadaju uglavnom obiteljskim poljoprivrednim gospodarstvima, koji čine prevladavajući dio agrarne strukture s prosječnom veličinom parcela od 0,45 ha. Poslovnii subjekti koji se bave poljoprivrednom proizvodnjom koriste značajno veće površine po subjektu u usporedbi s poljoprivrednim kućanstvima, imaju manji broj parcela po subjektu i veću prosječnu veličinu parcele. Svi oni mogu biti zainteresirani za primjenu navodnjavanja.

U kategoriju vrlo malih sustava pripadaju navodnjavane površine manje od 5 ha, a malima se smatraju oni na površinama od 5-10 ha. To su uglavnom jedno ili više komercijalnih obiteljskih poljoprivrednih gospodarstava.

Sustavi srednje veličine odnose se na navodnjavane površine od 10-200 ha, a potencijalni korisnici su jedno ili više obiteljskih poljoprivrednih gospodarstava, jedna ili više zadruga, te trgovačka društva. Veliki sustavi smatraju se oni koji se izgrađuju za navodnjavanje površina većih od 200 ha.

NAPNAV-om precizno su definirane institucije uključene u provedbu Projekta, odnosno postupak nominiranja i financiranja pojedinačnih projekata.

Institucije uključene u provedbu Projekta

Postupak nominiranja pojedinačnih projekata

Postupak nominiranja pojedinačnog projekta navodnjavanja pokreće krajnji korisnik ili korisnici izradom idejnog rješenja, uz prilaganje ostale dokumentacije. Ujedno korisnik daje suglasnost da će koristiti izgrađene sustave i preuzeti prava i obaveze koje iz toga proizlaze, a što će biti regulirano zakonskim propisima. Nominirani projekti bit će vrednovani i rangirani od strane institucija uključenih u provedbu Projekta.
**Financiranje izgradnje sustava za navodnjavanje**


**Izvori financiranja**
- Državni proračun RH
- Predpristupni fondovi EU, Svjetska banka
- Komercijalni krediti s jamstvom države
- Lokalna uprava

**Dinamika izvođenja**

Do 2010. godine planiraju se izgraditi sustavi za navodnjavanje na novih 35.000 ha poljoprivrednih površina, odnosno do 2020. godine na ukupno 65.000 ha.
Kumulativno povećanje navodnjavanih poljoprivrednih površina u RH do 2020. godine

Zakonski okvir

Navodnjavanje je kao oblik korištenja voda određeno Zakonom o vodama, a Zakonom o financiranju vodnoga gospodarstva određena je naknada za takav oblik korištenja voda. Također je određen i način dobivanja koncesije za melioracijsko navodnjavanje. S obzirom na sustavno uvođenje navodnjavanja, u postupku je izrada nekoliko propisa kojima bi se podrobnije regulirao način korištenja i upravljanja sustavima za navodnjavanje, način obračunavanja i plaćanja propisanih naknada i dr.

Pregled dosadašnjih aktivnosti i ulaganja na području navodnjavanja za razdoblje 2004-2006

U okviru dosadašnjih aktivnosti na realizaciji NAPNAV-a izvršene su sljedeće ustrojstvene promjene:

- Uredbom Vlade RH o unutarnjem ustrojstvu MPŠVG-a osnovan je Odjel melioracijskog navodnjavanja unutar Uprave gospodarenja vodama - Sektora gospodarenja vodama.
• U okviru Hrvatskih voda, Odlukom generalnog direktora formirana je Radna skupina za provedbu Nacionalnog programa navodnjavanja koju čine 4 djelatnika u Direkciji Hrvatskih voda te po 1 - 2 djelatnika u 4 VGO-a (VGO Sava, VGO Osijek, VGO Rijeka i VGO Split).
• Pri županijama osnivaju se radni timovi za koordinaciju i praćenje izrade Županijskih planova navodnjavanja (članovi su predstavnici Ministarstva, Hrvatskih voda te nadležni stručnjaci iz županijskih službi: agronomi, građevinari- hidrotehničari). Kroz ove radne timove krajnji korisnici naznačuju svoje potrebe i interes za uvođenje navodnjavanja na svom poljoprivrednom zemljištu.

Dosadašnja realizacija NAPNAV-a provodi se kroz tri faze i to:

I faza: Planovi navodnjavanja županija (PNŽ),
II faza: Pilot – projekta navodnjavanja (PPN)
III A faza: Projektna dokumentacija za pojedinačne sustave navodnjavanja (SN) te
III B faza: Sanacija/rekonstrukcija postojećih i izgradnja novih sustava navodnjavanja.

I. faza:

Planovi navodnjavanja županija (PNŽ) su ključni planski dokument kojim se definiraju mogućnosti i potrebe za navodnjavanjem poljoprivrednih površina na području neke županije. U proteklom razdoblju započelo se sa izradom istih u 18 od 21 županije, od kojih je 7 donesenih, 4 su proceduri donošenja (recenzija), a 7 ih je u fazi izrade. Tijekom 2007 godine očekuje se dovršetak i donošenje planova. 50% sredstava za izradu navedenih planova osigurava Ministarstvo poljoprivrede, šumarstva i vodnoga gospodarstva, dok preostalih 50% osigurava svaka pojedina županija.
II. faza:

Tema je NAPNAV-a određena su četiri nacionalna pilot projekta navodnjavanja (PPN) i to:

- Višenamjenski kanal Sava – Dunav (navodnjavanje BiH-Bosutskog polja)
- Sustav navodnjavanja Opatovac (Vukovarsko-srijemska županija)
- Sustav navodnjavanja Kaštela-Trogir-Seget (Splitsko-dalmatinska županija)
- Sustav navodnjavanja donje Neretve (Dubrovačko–neretvanska županija);

Očekivani učinci i koristi pilot projekta:

- Brz postupak za analizu troškova i ekonomske opravdanosti i uvodenja sustava za navodnjavanje
- Optimiziranje količine istraživanja i mjerenja potrebnih za projektiranje i uvodenje sustava
- Definiranje i optimiziranja mjera gospodarenja u danim agroekološkim uvjetima
- Osisnura se podloga za donošenje zakonskih i podzakonskih propisa vezanih problematiku izgradnje, održavanja i upravljanja sustavima za navodnjavanje
- Edukacija sudionika u sustavu, podizanje opće znanja i oseobljjenosti kadrova na lokalnoj razini
- Testiranje novih tehnika navodnjavanja i ekoloških učinaka


III. faza:

Projektna dokumentacija za pojedinačne sustave navodnjavanja (SN) izrađuje se za poznate korisnike i lokacije navodnjavanja. Izrađuju se idejni i glavni projekti, a za one koji su dovršeni u tijeku je ishodenje odgovarajućih lokacijskih dozvoli. U ovoj fazi obuhvaćeno 12 županija sa 32 projekta. Projekte prati Ministarstvo poljoprivrede, šumarstva i vodnoga gospodarstva u iznosu od 50% vrijednosti dok se preostali dio osiguravaju županije i gradovi ili krajnji korisnik.
Do dovršenja tehničke dokumentacije i ishodenje potrebnih dozvola za izgradnju novih sustava, započelo se sa sanacijom postojećih sustava navodnjavanja. U razdoblju 2004-2006 sanirana su i puštena u funkciju dva sustava:

1. Sustav navodnjavanja Vransko polje (Zadarska županija) - 483,74 hektara, korisnik “Vrana” d.o.o Biograd n.m., proizvodnja povrća, silažnog kukuruza, vinove loze, krajnji korisnik je sudjelovao sa vlastitim sredstvima u sanaciji sustava.
2. **Sustav navodnjavanja Grabovo** (Vukovarsko-srijemska županija) - I faza 500 hektara, korisnik “Vupik”

Vukovar, proizvodnja povrća i ratarskih kultura, korisnik je sudjelovao sa 2.000.000 kn u I fazi sanacije sustava.

Uz navedene sustave u proteklom periodu izvedena je i djelomična sanacija pojedinih hidrotehničkih građevina koje služe za navodnjavanje (akumulacija, crpnih stanica i kanala za navodnjavanje) na području Dalmacije.

**Problematika usitnjenosti zemljišta**

**Usitnjenost proizvodnih površina** stvara velike probleme i ograničenja u organizaciji profitabilne i učinkovite poljoprivredne proizvodnje, i jedan je od glavnih ograničavajućih čimbenika za brži razvoj poljoprivrede u Hrvatskoj.

**Komasacija u Hrvatskoj** je odavno poznata kao mjera za okrupnjavanje i uređenje proizvodnih površina u svrhu djelotvorne poljoprivredne proizvodnje na poljoprivrednim gospodarstvima. Od prvog modernog Zakona o komasacijii iz 1902. godine pa do 1990. godine, komasacije su se provodile na gospodarski bogatijim prostorima, a njihov intenzitet ovisio je o društveno političkim prilikama.

Ovo Ministarstvo u suradnji sa švedskom Vladam provodi zajednički projekt “Okrupnjavanje poljoprivrednog zemljišta u Hrvatskoj” čija provedba se temelji na dva osnovna instrumenta:

- okrupnjavanje kao mjera uređenja poljoprivrednog zemljišta,
- osnivanje zemljišnog fonda kao mjera unapređenja tržišta poljoprivrednim zemljištem.

Projekt uključuje 5 pilot projekata okrupnjavanja poljoprivrednog zemljišta na 5 lokacija u 4 županije

- Primorsko-goranska županija,
- Vukovarsko-srijemska županija,
- Zagrebačka županija i
- Varaždinska županija.

Svrha projekta je podržati razvoj nacionalne politike okrupnjavanja poljoprivrednog zemljišta.
Pilot projekt navodnjavanja DONJA NERETVA

Dolina donjeg toka rijeke Neretve u Republici Hrvatskoj (Donja Neretva) je specifičan prostor površine oko 12.000 ha u kojem je sve oduvijek bilo prilagođeno vodom režimu prirodnog okruženja.

Pet lokaliteta, u ukupnoj površini od 1620 ha, je zaštićeno, a prostornim planom Dubrovačko-neretvanske županije cijelo područje Donje Neretve je predviđeno za zaštitu u kategoriji parka prirode, dok se područje Parila i jezero Kuti predlaže zaštititi kao posebni zoološki (ornitološki) rezervat.

Poljoprivredna proizvodnja u Donjoj Neretvi se odvija na oko 5370 ha poljoprivrednih površina, većim dijelom unutar melioracijskog sustava, a manjim dijelom u plavljenom području. Provodenje melioracijskih zahvata, intenzifikacija poljoprivredne proizvodnje i uvodenje novih kultura, rezultirali su brzim socijalno-ekonomskim promjenama praćenim porastom životnog standarda stanovništva Donje Neretve.

Poteškoću u poljoprivrednoj proizvodnji na ovim prostorima predstavlja zaslanjivanje obradivih površina uslijed nedostatka slatke vode u sušnim periodima, a može se spriječiti navodnjavanjem slatkom vodom. Na području donje Neretve podzemna voda je slana i bočata, a dotok nezaslanjene vode vrlo mali. Postojećim sustavom za navodnjavanje je predviđeno dovođenje kvalitetne vode zahvaćene iz rijeke Neretve uzvodno od Metkovića (teritorij BiH) do profila Male Neretve u Opuzenu radi održavanja slatkovodnog bazena površine oko 2500 ha (vodene i močvarne) i razvođenja vode po parcelama na oko 3600 ha. Usmještena koncepcija u praksi se pokazala pogonskim skupim i neučinkovitim rješenjem koje zadovoljava potrebe samo dijela poljoprivrednih površina.

U smislu unapređenja i optimalizacije postojećeg stanja navodnjavanja izrađena je Studija navodnjavanja u Donjoj Neretvi (Agronomski fakultet, 2006 godina) u kojoj je detaljno obrađena poljoprivredna proizvodnja i uvjeti navodnjavanja u Donjoj Neretvi s varijantama rješenja glavnog dovoda vode do obradivih površina. Izrađeno je 7 varijanti i 3 podvariante. Nakon više javnih i stručnih prezentacija navedene studije usvojena su kao optimalna dva rješenja:

- zahvat vode iz Neretve na lokaciji nizvodno od Opuzena, izgradnjom novog praga koji sprečava prodor slanog kline
- zahvat vode uzvodno od Metkovića (van dosegla slanog kline), sa optimalizacijom i modernizacijom postojećeg sustava navodnjavanja.

Temeljem usvojenih koncepcija krajem 2006 godine izrađen je projektni zadatak za izradu idejnog rješenja sustava navodnjavanja za obje varijante, odnosno projektni zadatak za idejni projekt za onu varijantu koja će biti odabrana kao najprihvatljivija nakon usvajanja idejnih rješenja. Također je izrađen projektni zadatak za izradu glavnog projekta za dio PPN donja Neretva površine 450 ha.
Zaključak

Zaključujući pregled sadržaja i realizacije Nacionalnog projekta navodnjavanja i gospodarenja poljoprivrednim zemljištem i vodama u Republici Hrvatskoj (NAPNAV) važno je naglasiti da se on nalazi u prvoj fazi realizacije, gdje je naglasak prvenstveno dan na organizacijsko ustrojstvene aktivnosti, odnosno na izradu planova i tehničke dokumentacije. U drugoj fazi (2008) očekuje se početak gradnje više novih sustava navodnjavanja.

Samo realizacijom ovog projekta moguće je stvoriti pretpostavke za konkurentnost i efikasnost hrvatske poljoprivrede na tržištu Europske unije.

Neretva i Trebišnjica River Basin Management Project (NTRB)

Regionalni projekt „Integrirano upravljanje ekosustavom sliva rijeke Neretve i Trebišnjice“ (NTRB) nastao je iz Akcijskih planova BiH i Republike Hrvatske (NEAP) kojima je utvrđeno da je nužna međudržavna suradnja u gospodarenju vodom i okolišem, a gospodarenje vodnim resursima glavni prioritet s obzirom na okoliš.


Ministarstva kulture, Ministarstva poljoprivrede, šumarstva i vodnoga gospodarstva, Hrvatskih voda i Svjetske banke, dogovorene su aktivnosti koje je potrebno poduzeti da bi Hrvatske vode preuzele navedenu ulogu. Dana 23. prosinca 2004. godine, potpisan je Ugovor o poddarovnici između Ministarstva financija, Ministarstva zaštite okoliša, prostornog uređenja i graditeljstva i Hrvatskih voda kojim je status korisnika darovnice prenesen na Hrvatske vode.

U studenom 2005. godine ispred Ministarstva zaštite okoliša, prostornog uređenja i graditeljstva, Ministarstva kulture, Ministarstva poljoprivrede, šumarstva i vodnoga gospodarstva i Hrvatskih voda imenovani su članovi tzv. „Steering Committee“ (nadzornog odbora), Tehničke radne grupe i Povjerenstva za provedbu postupka nabave. Sukladno Ugovoru o darovnici Republika Hrvatska provela je postupak nabave usluge izrade studije #1 „Ocjena ekosustava ovisnih o vodi i gospodarenja vodama u slivu međudržavnih vodotoka Neretve i Trebišnjice“. Kao najpovoljnija odabrana je zajednička ponuda tvrtke Elektroprojekt d.d. iz Zagreba i stručnjaka Prirodoslovno-matematičkog fakulteta Sveučilišta u Zagrebu. Rok za izradu iste bio je 30. lipnja 2005. godine. Izrade ostalih studija raspodijeljene su između Federacije BiH i Republike Srpske i to:

- Studija #2 „Procjena upravljanja vodnim i zemljišnim resursima u riječnom bazenu Neretve i Trebišnjice“ (FBiH)
- Studija #3 „Okvirna ekonomsko procjena upotrebe vodnih resursa u slivovima Neretve i Trebišnjice“ (RS)
- Studija #4 „Socijalna i ruralna razvojna procjena integralnog upravljanja ekosustavom riječnih bazena Neretve i Trebišnjice“ (FBiH)
- Studija #5 „Procjena utjecaja na okoliš“ (RS)
- Studija #6 „Projekt dizajn i dokumentacija“ (FBiH)

Za svaku pojedinu studiju konzultanti su predložili Liste projekta koje je koristio konzultant #6 studije za izradu završnog prijedloga projektnih rješenja i dokumenta za odobrenje projekta, sukladno kriterijima GEF-a i smjernicama za pripremu projekta Svjetske banke.

Očekuje se da će GEF financirati 8 milijuna USD od predloženog NTRB projekta od čega cca 6 milijuna za BiH i 2 milijuna USD za Hrvatsku. Svaka od država sudjelovala bi u financiranju projekta s vlastitim sredstvima i to: BiH sa 2 mil. USD, a RH sa 3 mil. USD).

Predložene komponente za financiranje su sljedeće:

1. Unapređenje upravljanja prekograničnim vodnim resursima
2. Unapređenja upravljanja i korištenja močvarnih ekosustava
3. Investicije od visokog prioriteta za kontrolu onečišćenja voda
4. Sudjelovanje javnosti i upravljanje provođenjem projekta

U tijeku je izrada konačnog PAD-a (Project appraisal document), te izrada Operativnog priručnika, Plana nabave i Financijskog priručnika.
Literatura

Nacionalni projekt navodnjavanja i gospodarenja poljoprivrednim zemljištem i vodama u RH (Agronomski fakultet Sveučilišta u Zagrebu, Građevinski fakultet Sveučilišta u Zagrebu i Sveučilišta u Splitu, 2005.)

Službeni podaci Ministarstva poljoprivrede, šumarstva i vodnoga gospodarstva te Hrvatskih voda (projekti navodnjavanja)
Part V

Appendix
Photographs from the Regional Workshop on WUAs Development
Bucharest, Romania, June 4-7, 2007
**Regional Workshop on Water Users’ Associations Development**

**Bucharest, Romania**

**June 4 - 7, 2007**

**Organized by:** Romania Ministry of Agriculture and Rural Development, World Bank and World Bank Institute

**Supported by:** Bank-Netherlands Water Partnership Program

**Facilitated by:** International Network on Participatory Irrigation Management (INPIM)

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**Workshop Program**

**Dates:** June 4-7 2007

**Venue:** World Bank Office, Bucharest, Romania

**Participants:** 35 participants from Albania, Bosnia and Herzegovina, Croatia, Romania, Serbia, World Bank, other institutions.

**Main Objective:** The main objective of the regional workshop is to share experiences on WUAs, and to discuss options and solutions for implementing and sustaining Water Users Associations

### DAY 1 – Monday, June 04, 2007

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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| 18:00 – 19:00 | **Opening Ceremony and Welcome Speeches**  
  - Welcome by Mr. Gabriel Ionita, Sr. Agricultural Specialist, World Bank Office Romania  
  - Welcome by Mr. Dacian Ciolos, Under-Secretary of State, Ministry of Agriculture and Rural Development of Romania  
  - Welcome by Mr. Usaid El Hanbali, Sr. Water Resources Engineer, World Bank  
  - Presentation of the Workshop program, Mr. Intizar Hussain, Executive Director, INPIM |
| 19:30– 21:30 | **Welcome Dinner** |

### DAY 2 – Tuesday, June 05, 2007

<table>
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<tr>
<th>Time</th>
<th>Activity</th>
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<tr>
<td>9:00 – 9:30</td>
<td><strong>Warm-up session and introduction of participants</strong></td>
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<tr>
<td>9:30 – 10:30</td>
<td><strong>Country Presentations: Romania, Albania</strong></td>
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<tr>
<td>10:30 – 11:030</td>
<td><strong>Comments, Questions and Answers</strong></td>
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<tr>
<td>11:00 – 11:30</td>
<td><strong>Coffee break</strong></td>
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<td>11:30 – 12:00</td>
<td><strong>Country Presentations: Serbia</strong></td>
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<tr>
<td>12:00 – 12:30</td>
<td><strong>Comments, Questions and Answers</strong></td>
</tr>
<tr>
<td>12:30 – 14:00</td>
<td><strong>Lunch Break</strong></td>
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<tr>
<td>14:00 – 15:00</td>
<td><strong>Country Presentations: Croatia, Bosnia</strong></td>
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<tr>
<td>15:00 – 15:30</td>
<td><strong>Comments, Questions and Answers</strong></td>
</tr>
<tr>
<td>15:30 – 16:00</td>
<td><strong>Coffee Break</strong></td>
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</tbody>
</table>
| 16:00 – 17:00 | **Break out session addressing questions on WUA development (2 groups)**  
  - **Group 1** to discuss the legal and institutional issues of internal functions of WUAs |
### DAY 3 – Wednesday, June 06, 2007

<table>
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<tr>
<th>Time</th>
<th>Activity</th>
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<tr>
<td>17:00 – 17:30</td>
<td>Brief introduction to field visit to the “SADOVA – CORABIA” Scheme – by Mr. Cornel Tusa, PMU Director, Romania</td>
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<td><strong>Group Photo in front of the RAMADA Hotel</strong></td>
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</table>

### DAY 4 – Thursday, June 07, 2007

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<tr>
<th>Time</th>
<th>Activity</th>
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</table>
| 9:00-10:00 | **Group Presentations by participants based on discussions in the Break out session of June 05 and field observations**  
  - Presentation by Group 1 Representative  
  - Presentation by Group 2 Representative  
  - Answers to questions on WUA development |
| 10:00-10:30| **International Experience in WUA Development:**  
  - Presentation by Dr. Mei Xie, World Bank Institute |
| 10:30-11:00| Coffee Break                                                                                |
| 11:00-11:30| **International Experience with PIM Reforms**                                               
  - Presentation by Dr. Intizar Hussain, Executive Director, INPIM |
| 11:30 – 12:00 | Film presentation: "Evolution of Farmer Water User Associations in China" (film by China Hunan TV) |
| 12:00 – 12:30 | **World Bank support to WUAs development in the region through infrastructure rehabilitation and institutional reform projects**  
  - Presentation by Mr. Usaid El Hanbali, Task Manager, World Bank |
| 12:30 – 13:00 | Comments, Questions and Answers                                                             |
| 13:00 – 14:30 | Lunch Break                                                                                 |
| 14:30 - 15:30 | **Break-out session:**  
  - **Group 1** to discuss management & strategy in irrigation sector and relations with WUA  
  - **Group 2** to discuss and exchange experiences, and develop plans for regional cooperation |
| 15:30 - 16:00 | Coffee Break                                                                                |
| 16:00 - 17:00 | **Group Presentations**  
  - Presentation by Group 1 Representative  
  - Presentation by Group 2 Representative |
| 17:00 - 17:30 | **Wrap Up Session , Conclusions, Closing**                                                  |

### DAY 5 – Friday, June 08, 2007

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<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<td><strong>Departure of Participants</strong></td>
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### Regional Workshop on Water Users’ Associations Development

**June 4-7, 2007 – Bucharest, Romania**

#### List of Participants

<table>
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<tr>
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<th>Name</th>
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<td>1</td>
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<td>13</td>
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Republic of Albania

Law No. 8518, Date 30.7.1999

On Irrigation and Drainage

Pursuant to articles 78 and 83 point 1 of the Constitutional Provisions and the proposal of the Council of Ministers

The Peoples’ Assembly of the Republic of Albania Decided:

Chapter 1
General Provisions

Article 1
Purpose of the law

The purpose of this law is:

(a) to establish a comprehensive legal framework for the establishment and operation of Water User Associations, Federations of Water User Associations and Drainage Boards;
(b) to define institutional arrangements and competences supporting a national policy in respect of irrigation, drainage and flood protection in Albania;
(c) to determine the legal rights and duties of legal and natural persons involved in irrigation, drainage and flood protection;
(d) to provide for the transfer in use and in ownership of irrigation systems to Water User Associations and Federations of Water User Associations; and
(e) to provide for the transfer in use and in ownership of drainage systems and flood defence works to Drainage Boards.

Article 2
Definitions

Within the meaning of this law:

An “Association” means a Water User Association established in accordance with the provisions of this law and the Civil Code of the Republic of Albania.

“Meeting of Association” means the main decision-making body of the Association.

A “Beneficiary” means farmers or inhabitants living in the irrigation areas defined in this article who benefit from the relevant services.

A “Federation” means a Federation of Water User Associations established in accordance with the provisions of this law.

An “Administrative Council” means the body charged with the management of an Association or a Federation.

A “Drainage Board” means a public legal body established in accordance with chapter V of this law.
A “drainage pumping station” includes groups or separate electropumps, electricity supply lines, telephone lines and substations that are connected to it, which serve to drain land.

“Flood defence works” include flood protection embankments and structures constructed alongside rivers, collector drains and other water courses for the purpose of preventing flooding.

An “irrigation service area” means a defined geographical area in which irrigation water can be provided by an Association or Federation using one/some irrigation systems.

A “drainage service area” means a defined geographical area which benefits from a specified main drainage system.

An “irrigation system” means a network of irrigation canals, together with any associated hydro-technical equipment, pumping stations, roads, buildings and associated infrastructure, which is supplied from a primary canal or a primary water source for irrigating an area of land and includes drainage pipes and channels which drain that land only. An irrigation system includes land adjacent to irrigation canals that has been retained in state ownership for the purpose of granting access to such canals.

A “main drainage system” means a network of drainage pipes, canals and channels, together with associated hydro-technical equipment and infrastructure, including drainage pumping stations, roads and buildings, which serves to drain land, including agricultural land, roads and urban areas. A main drainage system includes land adjacent to drainage canals and channels that has been retained in state ownership for the purpose of granting access to such canals and channels.

A “primary canal” means an irrigation canal that carries water from a river, drain, reservoir or other watercourse to one or more irrigation systems.

The “Supervisory Department” means the Irrigation and Drainage Supervisory Department established within the Ministry of Agriculture and Food.

**Article 3**

Water sources of rivers, stream, underground waters and irrigation and drainage systems which irrigate land are in ownership of the state.

**Article 4**

**Principles**

The operation and administration of irrigation systems, drainage systems and flood defence works shall take place in accordance with the following principles:

- **(a)** irrigation systems and drainage systems shall be operated in an equitable manner so as to promote and protect the interests of all beneficiaries;
- **(b)** irrigation systems and drainage systems shall be operated in a rational manner so as to prevent over-watering, erosion and pollution and to promote the protection of the environment.
- **(c)** the beneficiaries of irrigation systems, drainage systems and flood defence works should bear the costs of their operation and maintenance;
Article 5

Administration of the Irrigation and Drainage Sectors

1. The Ministry of Agriculture and Food is the principal government body responsible for the irrigation and drainage sectors.

2. District Water Directorates shall undertake the tasks and functions in the irrigation and drainage sectors set out in this law until such time as these tasks and functions are transferred toAssociations, Federations or Drainage Boards.

3. Associations shall undertake the operation and maintenance of irrigation systems that have been transferred to them in accordance with chapter III of this law.

4. Federations shall undertake the operation and maintenance of primary canals that have been transferred to them in accordance with chapter IV of this law.

5. Drainage Boards undertake tasks specified in this law in accordance with chapter V of this law.

Article 6

The Competencies of the Ministry of Agriculture and Food

1. The Ministry of Agriculture and Food:
   (a) shall determine the national policy on irrigation and drainage;
   (b) shall determine the tasks, accounts, budgets and work-plans of the District Water Directorates and supervise their operation;
   (c) shall provide legal supervision over the legal and financial operation and functioning of Associations, Federations and Drainage Boards;
   (d) shall provide technical supervision of irrigation and drainage infrastructure;
   (e) may propose the establishment of Drainage Boards;
   (f) may authorise the transfer of irrigation networks and primary canals to Associations and Federations; and
   (g) shall undertake other tasks specified in this law.

2. The Ministry of Agriculture and Food may delegate its tasks to the District Directorates of Agriculture at the district level.

3. Within the Ministry of Agriculture and Food, the Irrigation and Drainage Supervisory Department is established. The Supervisory Department shall:
   (a) maintain the Register of Associations, Federations and Drainage Boards;
   (b) provide advice and guidance to Associations, Federations and Drainage Boards at their request in respect of legal, accounting, taxation and technical matters;
   (c) supervise the election of Administrative Councils of Associations and Federations;
   (d) undertake audits of Associations, Federations and Drainage Boards;
   (e) undertake technical supervision and physical inspections of irrigation networks, primary canals, main drainage systems and flood protection works;
   (f) undertake the monitoring of irrigation-drainage water quality and land under the system of these waters;
   (g) undertake other tasks specified in this law.
Article 7

District Water Directorates

1. District Water Directorates are special enterprises of the Ministry of Agriculture and Food. They perform tasks of the type specified in this article until such time as these tasks are transferred to Federations, Associations and Drainage Boards.

2. The tasks of District Water Directorates include:

   (a) the operation and maintenance of primary canals and the supply of irrigation water from those canals to Associations on a contract basis;
   (b) the operation and maintenance of main drainage systems;
   (c) the operation and maintenance of flood protection works; and
   (d) the performance of such other services as may be specified in sub-articles.

3. The annual budget and work-plan of each District Water Directorate shall be approved by the Ministry of Agriculture and Food. Funding for District Water Directorates shall be from revenues received from the supply of irrigation water, from the state budget and from income generated through other permitted activities.

4. Tariffs for water supplied under sub-articles 2(a) shall be based on the quantity of water, which is supplied, or the area which is irrigated and shall be determined on the basis of negotiations between the District Water Directorates and the Associations involved. The tariffs that Associations or Federations will pay to the District Water Directorate shall be determined on the basis of negotiations between the parties. The contract signed includes all the rights and duties of the parties. Such tariffs shall be notified by the District Water Directorates to the Ministry of Agriculture and Food which shall give its approval.

5. District Water Directorates shall not supply water directly to the owner or occupier of land located within the irrigation service area of an Association. If farmers are not engaged in Associations, special tariffs shall be applied by a decision of the Ministry of Agriculture and Food.

6. A District Water Directorate which operates within the drainage service area of an Advisory Drainage Board shall co-operate fully with that Advisory Drainage Board and shall promptly make available to that Advisory Drainage Board copies of any documentation or records in its possession.

Chapter 2

Irrigation and Drainage Infrastructure

Article 8

Inventory of Irrigation Systems and Drainage Systems

The Ministry of Agriculture and Food shall prepare, maintain and periodically review and update an inventory of state-owned irrigation systems and drainage systems and flood defence.

Article 9

Basis for the Transfer of Infrastructure

1. Until such time the Drainage Boards are established in accordance with chapter V of this law, a transfer of infrastructure shall take place on the basis of contractual use right. Each such transfer shall be recorded in a written agreement in the prescribed form between the Ministry of Agriculture and Food and the transferee. Such an agreement shall contain conditions specifying the rights and duties of the parties to the agreement concerning the operation and maintenance of the infrastructure.
2. The Council of Ministers, on the proposal of the Ministry of Agriculture and Food, may determine that transfers of infrastructure are to take place on the basis of:

(a) A transfer into use
(b) a concession agreement in accordance with the concession law

The Ministry of Agriculture and Food shall be the authorised body for the purpose of that law.

**Article 10**

**Transfer of Infrastructure**

The Ministry of Agriculture and Food approves:

(a) a primary canal or a reservoir which serves more than one Association may be transferred to a Federation which has been established to operate and maintain that canal or reservoir;
(b) a primary canal or a reservoir which serves only one Association may be transferred to that Association;
(c) an irrigation system which serves an Association may be transferred to that Association;
(d) a main drainage system may be transferred to a Drainage Board.
(e) each transfer shall take place in accordance with a map or planimetry which includes the primary canal, the reservoir, the irrigation and drainage system which is to be transferred.

**Article 11**

**Operation of Infrastructure**

1. An Association shall operate an irrigation system that has been transferred to it in an equitable manner so as to ensure that each Association member receives a fair and timely supply of water.

2. An Association may supply water on a contractual basis to a person who owns land located within its irrigation service area who is not a member of that Association. An Association may, according to its statute, impose charges for the supply of such water at a rate that is higher than that charged to its members, except that the level of such charges shall not exceed twice the amount charged to members.

3. Each Association shall take all reasonable measures to maintain and protect any irrigation systems that have been transferred to it, and to prevent unauthorised encroachments on to such an irrigation system including in any adjacent land which is included in that system.

4. A Federation may supply water on a contractual basis to an Association that is not a member of the Federation at a rate which is higher than that charged to its members, save that the level of such charges shall not exceed twice the amount charged to members.

5. Each Federation shall take all reasonable measures to maintain and protect any infrastructure which has been transferred to it, and to prevent unauthorised encroachments on to such infrastructure and any adjacent land.

6. Each Federation and Association shall:

   (a) maintain and operate the infrastructure that has been transferred;
   (b) comply with the provisions of environmental and water legislation;
   (c) maintain a written record of the quantity of water it uses annually;
Chapter 3
Water User Associations

Article 12

Establishment of Associations

1. Associations shall be established on a voluntary basis in accordance with the provisions of the Civil Code. Each legal or natural person that uses or owns land within the irrigation area of an Association has the right to be a member of this Association. The Association is registered in a competent district court after its statute is approved by the Ministry of Agriculture and Food.

2. Amendments to the statute of an Association shall take place in accordance with the Civil Code except that every proposal to amend the statute of an Association shall be approved by the Ministry of Agriculture and Food as well as the General Meeting. The Association shall file the amended statute at the competent district court within 30 days of the receipt of approval from the Ministry of Agriculture and Food.

3. The Minister of Agriculture and Food may make regulations concerning the procedures to be followed for the establishment of Associations.

Article 13

Associations make their statute in accordance with the provisions of the Civil Code. The statute sets out the tasks of Associations, the rights and duties of Association members.

Article 14

Organisational Structure of Associations

1. Each Association shall have a General Meeting, an Administrative Council and a Chairman.

2. An Association with less than [thirty] members may dispense with the need to have an Administrative Council and may provide for the tasks of the Administrative Council to be performed by the Chairman.

3. An Association may provide in its statute for the establishment and operation of additional organs such as an Executive Council, an audit-committee and an arbitration panel.

Article 15

The General Meeting

1. The General Meeting is the principal decision making body of an Association and shall meet at least once a year at an Annual General Meeting. Every member of an Association shall be entitled to attend the meetings of the General Meeting.

2. Extraordinary meetings of the General Meeting may be called by the Administrative Council at its discretion and must be called by the Administrative Council on the written request of at least 20% of the members, or their representatives, or as specified in the statute.

3. Decisions of the General Meeting shall be made by simple majority of the votes cast when not less than half of the members are present. Meetings of the General Meeting shall be chaired by the Chairman of the Association, or in his absence the Deputy Chairman or such other person as may be specified in the statute.

4. In addition to the powers granted by the Civil Code, the General Meeting shall have the power to deal with the following matters:
(a) approval of the accounts, annual report and proposed budget;
(b) approval of the annual operation and maintenance plan;
(c) approval of the annual cropping plan, water delivery schedule and watering plan;
(d) approval of the level of fees and charges to be levied by the Association as well as any penalties to be imposed by the Association;
(e) any amendment to the statute;
(f) the making of internal rules and operational regulations as permitted by the statute; and
(g) decisions regarding the merger of the Association and its membership of a Federation.

Article 16

Representative System

1. If the number of members of the Association is so large that it is impracticable to hold meetings of the General Meeting which all members can effectively participate, the statute may provide for the establishment of a representative system in accordance with this article.

2. A representative system shall provide for members to be divided into separate groups each of which will elect a representative to represent that group at meetings of the General Meeting and to vote on its behalf. The statute may provide that each representative shall have one vote or that each representative shall be entitled to exercise the votes of the members he or she represents. Where a representative system is in place members of the Association shall be entitled to attend meetings of the General Meeting but shall not be entitled to vote.

3. The statute shall specify the term of office of representatives and procedures for electing representatives.

Article 17

Administrative Council

1. The Administrative Council shall be responsible to the General Meeting for supervising the operation of the Association and shall consist of a minimum of three persons.

2. Members of the Administrative Council shall be members of the Association and shall be elected by the General Meeting at the Annual General Meeting for a period of up to two years. A retiring member of the Administrative Council may stand for re-election. No person shall be eligible to stand for election to the Administrative Council if that person owes outstanding charges, fees or penalties to the Association.

3. The tasks of the Administrative Council shall include:
   (a) the calling of meetings of the General Meeting;
   (b) the preparation of draft budget, work-plan and operation and maintenance plan for approval by the General Meeting;
   (c) the awarding of contracts in accordance with the approved budget, work-plan and operation and maintenance plan;
   (d) hiring and dismissing Association staff;
   (e) the proposal of matters to be determined by the General Meeting;
   (f) monitoring the operation of the Association;
   (g) ensuring that the Association's financial and accounting procedures are followed; and
   (h) such other matters as may be specified in the statute.

4. Meetings of the Administrative Council shall take place each month or as otherwise specified in the statute. Additional meetings may be called as required by the Chairman or one third of the members of the Administrative Council. Decisions of the Administrative Council shall be made by a simple majority vote of those members present and the Chairman shall have a casting vote in the case of equality of votes. The statute
shall specify the number of members of the Administrative Council required to be present in order to render a meeting quorate.

5. The Chairman is to be elected by the Administrative Council from among its members or directly by the General Meeting from among the members of the Association.

**Article 18**

**Executive Staff**

1. An Association may employ executive staff and a workforce. The number of such staff and the duration of their terms of appointment may be established in the statute or by a decision of the General Meeting.

2. The executive staff of an Association may include an Executive President, a General Secretary, an Accountant, a Supervisor and a Water Master. The tasks, powers and job descriptions of these office holders shall be specified in the statute or by a decision of the General Meeting.

**Article 19**

**Fees Payable by Association Members**

1. The statute of each Association shall require members to promptly pay any fees levied by the Association in accordance with the statute including:

   - (a) irrigation water supply charges;
   - (b) drainage charges;
   - (c) an annual membership fee; and
   - (d) any other charges levied by the Association.

2. A person who is expelled or required to resign from an Association in accordance with article 20, remains liable for all unpaid fees and charges due to the Association.

**Article 20**

**Resignation and Expulsion of Members**

1. Any person who is a member of an Association shall have the right to resign from the Association, except that the statute may specify that such a right cannot be exercised until the end of the irrigation season. If an Association has incurred specific expenditure relating to the design, construction, refurbishment or operation of an irrigation system as a result of a person's membership, such a person may not resign from the Association until they have reimbursed the Association an amount equivalent to that expenditure.

2. A person must resign from an Association if he or she sells all of his or her land within the irrigation service area of the Association or ceases to occupy such land and is no longer eligible for Association membership in accordance with article 13. Before the sale the buyer and seller shall inform the Association who will be responsible for any debts to the Association owed by the seller. The buyer may only become a member of the Association if all charges and fees owed to the Association by the seller have been paid off.

3. A person may be expelled from an Association on the following grounds in accordance with the statute:

   - (a) systematic violation of the by-laws, internal rules and regulations of the Association;
   - (b) unreasonable delay in paying charges and fees levied by the Association;
   - (c) refusal to pay charges and fees levied by the Association; or
   - (d) refusal to repair damage that they have caused to Association property.
Article 21

Removal of Members of the Administrative Council

1. The General Meeting may vote to remove all or some of the members of the Administrative Council and/or the Chairman on the grounds of:
   
   (a) serious breach of duty; or
   (b) such other matters as may be specified in the statute.

2. In the event that a member of the Administrative Council is removed from office at a meeting of the General Assembly, that meeting shall also appoint a replacement. In cases where the Chairman is elected by the Administrative Council from among its members, the statute may provide for the Administrative Council to remove the Chairman on the grounds listed in sub-article 1.

Article 22

Dispute Resolution and Sanctions

1. An Association may include provisions in its statute on the imposition of sanctions against members who unlawfully breach the statute of the Association, or internal rules and regulations issued pursuant to the statute. Such sanctions may include fines, suspension, and expulsion.

2. An Association may provide in its statute that the General Meeting or the Administrative Council is to determine cases of the type indicated in sub-article 1. Alternatively, the statute may provide for the appointment of a special dispute-resolution panel or jury of members to be appointed by:
   
   (a) a special group or the General Meeting;
   (b) the Supervisory Department;
   (c) an independent third party.

Article 23

Joining of Associations

1. Two or more Associations may join into one Association in accordance with their statute and decisions of General Meetings, established on the basis of this law and the Civil Code.

2. This Association registers at court all properties of Associates joined.

Chapter 4

Federations of Water User Associations

Article 24

Establishment of Federations

1. Federations are non-profit associations established to administrate and operate the same water sources.

2. Federations shall be established on a voluntary basis from associations with common interests. Every Association which is supplied with water from a primary canal or a reservoir operated by a Federation is entitled to become a member of that Federation. The Federation shall not file a request at the competent district court for the registration of the statute until such time as the statute has been approved by the Ministry of Agriculture and Food.
3. The Minister of Agriculture and Food may make regulations concerning the procedures to be followed for the establishment of Federations.

**Article 25**

**Tasks of Federation**

Tasks of Federation include:

(a) the management, operation and maintenance of primary canals, reservoirs and associated infrastructure;
(b) the supply of irrigation water to the Associations that are members or non-members of the Federation;
(c) development and construction activities necessary to achieve the purposes listed in sub-articles (a) and (b); and
(d) the collection of charges from members and non-members in respect of services provided by the Federation, including the costs of operating and maintaining any primary canal or reservoir.

**Article 26**

**Operating principles of Federations**

Federations shall operate on the basis of the following principles:

(a) each Federation shall allocate a fair share of water resources to each Association which is a member by reference to the quantity of water available and the irrigation service area of each member-Association;
(b) each Association which is a member of a Federation shall promptly pay a fair and proportionate share of the operation and maintenance costs of the Federation as well as water supply charges.

**Article 27**

**Federation Statute**

1. Each Federation shall adopt its own statute in accordance with articles of this law.

2. The statute regulates the organisation and operation of the Federation and shall also:

   (a) describe the primary canal and reservoir or other water source, if any, which is operated by the Federation, by reference to plans and maps;
   (b) contain the name and principal office of the Federation;
   (c) set out the organisational structure of the Federation;
   (d) contain provisions on the conditions and nature of membership;
   (e) specify the rights of the Federation members including their rights to vote; and

3. Amendments to the statute of a Federation shall take place in accordance with the Civil Code except that every proposal to amend to the statute of a Federation shall be approved by Administrative Council as well as the Ministry of Agriculture and Food. The Federation shall file the amended statute at the competent district court within 30 days of the receipt of approval from the Ministry of Agriculture and Food.

**Article 28**

**Organisational Structure of Federations**

1. Each Federation shall have an Administrative Council and a Chairman.
2. A Federation may provide in its statute for the establishment and operation of additional organs such as an Executive Council, an audit-committee and an arbitration panel.

Article 29

The Administrative Council

1. The Administrative Council is the principal decision making body of a Federation and shall meet every month or unless otherwise specified in the statute. Meetings may be called by the Chairman or on the request of one third of its members. Decisions of the Administrative Council shall be made by simple majority of the votes cast and the Chairman shall have a casting vote in the case of equality of votes. The statute shall specify the number of members of the Administrative Council required to be present in order to render a meeting quorate.

2. The statute shall determine the number of members each Association is entitled to appoint to the Administrative Council and the number of votes they are to have at meetings of the Administrative Council.

3. The Administrative Council shall elect from among its members, a Chairman who shall chair the meetings of the Administrative Council. His rights and duties are set out in the statute.

4. The tasks of the Administrative Council shall include:

   (a) approval of the accounts and annual report;
   (b) approval of the budget, work-plan and operation and maintenance plan;
   (c) approval of water distribution and irrigation plan;
   (d) approval of the level of fees and charges to be levied by the Federation as well as any penalties to be imposed by the Federation;
   (e) the making of internal rules and operational regulations as permitted by the statute;
   (f) awarding contracts in accordance with the budget, work-plan and operation and maintenance plan;
   (g) monitoring the operation of the Federation;
   (h) ensuring that the Federation's financial and accounting procedures are followed; and
   (i) such other matters as may be specified in the statute.

Article 30

Executive staff and workforce

1. A Federation may employ executive staff and a workforce. The number of such staff and the duration of their terms of appointment may be specified in the statute or by a decision of the Administrative Council.

3. The executive staff of an Association may include an Executive President, a General Secretary, an Accountant, a Supervisor and a Water Master. The tasks, powers and job descriptions of these office holders shall be specified in the statute or by a decision of the Administrative Council.

Article 31

The Rights of Federation Members

The statute shall set out the rights of Federation members.

Article 32

Fees payable by Federation Members

1. The statute of each Federation shall require members to promptly pay any fees levied by the Federation in accordance with the statute including:
(a) irrigation water supply charges, based on the quantity of water supplied, the area which is irrigated and the number of times on which they receive irrigation water on behalf of their members;
(b) the costs of operating and maintaining the primary canal and any reservoir or other water course operated and maintained by the Federation;
(c) drainage charges;
(d) an annual membership fee; and
(e) any other charges levied by the Federation.

2. The statute may provide for the staged payment of fees and may permit the Federation to charge interest on outstanding fees.

Article 33

Resignation and Expulsion of Members

1. An Association which is a member of a Federation shall have the right to resign from the Federation except that the statute may specify that this right cannot be exercised until the end of the irrigation season. If a Federation has incurred specific expenditure relating to the design, construction, refurbishment or operation of an irrigation system as a result of a person's membership, such a person may not resign from the Federation until that Association has reimbursed the Federation an amount equivalent to that expenditure.

2. An Association may be expelled from a Federation by a decision of the Administrative Council on the following grounds in accordance with the statute:
   (a) systematic violation of the statute, internal rules and operational regulations of the Federation;
   (b) unreasonable delay in paying charges and fees levied by the Federation;
   (c) refusal to pay charges and fees which have levied by the Federation; or
   (d) refusal to repair damage which they have caused to Federation property caused by their members.

3. An Association which resigns from a Federation, or which is expelled in accordance with sub-article 2, remains liable for all unpaid fees and charges due to the Federation and a Federation may seek to recover such fees and charges in the courts and refuse to supply water to such an Association until such time as those fees and charges have been paid.

Article 34

Dispute Resolution and Sanctions

1. A Federation shall include provisions in its statute on the imposition of sanctions against members who unlawfully breach the statute of the Federation, or internal rules and regulations issued pursuant to the statute. Such sanctions may include fines, suspension, and expulsion.

2. A Federation may provide in its statute that cases of the type indicated in sub-article 1 are to be determined by:
   (a) a special dispute-resolution panel made up of members of the Administrative Council and appointed by the Administrative Council;
   (b) a special dispute resolution panel made up of other persons;
   (c) a neutral arbitrator such as the Supervisory Department or the Chairman of the Kommuna or the District.
Chapter 5
Drainage Boards

Article 35

Drainage Boards

1. Drainage Boards may be established in accordance with this law as bodies of public law to undertake the tasks specified in this law.

2. Each Drainage Board is established pursuant to a decision of the Council of Ministers, on the basis of a proposal of the Minister of Agriculture and Food.

3. Each decision of the Council of Ministers establishing a Drainage Board shall also specify the type of Drainage Board, which is to be established, the drainage service area of that Drainage Board and the composition of the Board of Representatives.

Article 36

Categories of Drainage Board

1. A Drainage Board may be established as an Advisory Drainage Board, a Centrally Funded Drainage Board or a Self-Funded Drainage Board.

2. The Council of Ministers may, on the proposal of the Minister of Agriculture and Food, vary the categorisation and tasks of a Drainage Board.

Article 37

Advisory Drainage Board

1. An Advisory Drainage Board shall supervise the operation of the District Water Directorate or District Water Directorates which operate within its drainage service area and shall give advice to the Minister of Agriculture and Food in respect of the operation and performance of such District Water Directorates. The Advisory Drainage Board shall make recommendations to the Minister of Agriculture and Food in respect of:

   (a) the draft budget and work-plan of the relevant District Water Directorate or Directorates;
   (b) the accounts and balance sheet of the relevant District Water Directorate or Directorates;
   (c) the staffing levels of the District Water Directorate or Directorates; and
   (d) the implementation of the budget and work-plan.

2. The Advisory Drainage Board shall meet at least three times a year and shall determine its own rules of procedures. Decisions of the Board shall be made by vote with each member holding one vote. The Chairman shall be entitled to a casting vote in case of equality of votes. The attendance of at least half of the members shall be required for meetings to be quorate.

3. The Director of the District Water Directorate shall be entitled to attend the meetings of the Board of Representatives but shall not be entitled to vote.

4. The Ministry of Agriculture and Food shall

   (a) approve the statute of each Advisory Drainage Board; and
   (b) maintain and operate the accounts of each Advisory Drainage Board.
   (c) Makes decisions on the basis of advices of Advisory Drainage Boards.
Article 38

Organisational Structure of Advisory Drainage Board

1. Each Advisory Drainage Board shall contain as a minimum:

   (a) two representatives of Associations/Federations operating within the drainage service area, selected by the Associations/Federations from among their members;
   (b) one or more representatives of Districts within which the drainage service area operates, nominated by the District;
   (c) one or more kommuna located within the drainage service area and which benefits from drainage, selected by the kommunas from among their number;
   (d) one or more municipality located within the drainage service area and which benefits from drainage selected by the municipalities from among their number;
   (e) one or more representative of the Ministry of Agriculture and Food, nominated by the Minister of Agriculture and Food.

2. The Director of the Technical Secretariat of the National Water Council and the Director of the National Environment Agency shall each appoint one person who shall be entitled to attend meetings of the Advisory Drainage Boards as an observer, but who shall not be entitled to vote.

3. The Council of Ministers may specify that additional representatives of the beneficiary groups listed in sub-article 1 are to be appointed or selected or that representatives of additional beneficiary groups are to be appointed or selected from among their number.

4. The Council of Ministers appoints the Board of Representatives.

5. Each Board of Representatives shall have a Chairman appointed by the Minister of Agriculture and Food.

6. Members of the Board of Representatives may be paid expenses or a salary pursuant to a decision of the Council of Ministers.

Article 39

Centrally Funded Drainage Board

1. A Centrally Funded Drainage Board shall operate and maintain any main drainage system and flood defence works within its drainage service area, so as to remove excess water and prevent water logging, the development of salinity and toxicity and to prevent flooding.

2. In fulfilling its primary task, a Centrally Funded Drainage Board shall, within its drainage service area:

   (a) clean and maintain drainage canals, pipes and channels;
   (b) operate and maintain pumping stations;
   (c) monitor the quality of drainage water;
   (d) routinely inspect, survey, maintain and repair main drainage systems and flood defence works;
   (e) consider the effects of its activities on natural habitats and take steps to prevent or minimise disturbance or harm to these;
   (f) prepare an periodically update an emergency flood plan; and
   (g) maintain sea defences.

3. The annual budget and accounts of each Centrally Funded Drainage Board shall be approved by the Minister of Agriculture and Food on the proposal of the Board of Representatives.
Article 40

Self-Funded Drainage Board

1. A Self-Funded Drainage Board shall operate and maintain any main drainage system and flood defence works within its drainage service area, on the basis of funding raised by way of drainage charges payable by beneficiary groups and from the central budget if necessary and under the auspices of the Ministry of Agriculture & Food.

2. A Self-Funded Drainage Board shall undertake the activities listed in article 39.2 and shall in addition take measures to recover drainage charges from beneficiaries in accordance with the relevant legislation.

3. Subject to sub-article 2, the rights and duties of Self Funding Drainage Boards to levy and collect drainage fees from beneficiaries and beneficiary groups shall be established in separate legislation.

Article 41

Board of Representatives

1. Except for the Advisory Drainage Board each Drainage Board shall have a Board of Representatives which shall be made up of representatives of groups that benefit from drainage services provided within the drainage service area. The Board of Representatives shall have a minimum of seven members and a maximum of eleven members.

2. Each Board of Representatives shall contain as a minimum:

   (a) two representatives of Associations operating within the drainage service area, selected by the Associations from among their members;
   (b) one or more representatives of Districts within which the drainage service area operates, nominated by the District;
   (c) one or more kommuna located within the drainage service area and which benefits from drainage, selected by the kommunas from among their number;
   (d) one or more municipality located within the drainage service area and which benefits from drainage selected by the municipalities from among their number;
   (e) one or more representative of the Ministry of Agriculture and Food, nominated by the Minister of Agriculture and Food.

3. The Director of the Technical Secretariat of the National Water Council and the Director of the National Environment Agency shall each appoint one person who shall be entitled to attend meetings of the Board of Representatives as an observer, but who shall not be entitled to vote.

4. The Council of Ministers may specify that additional representatives of the beneficiary groups listed in sub-article 2 are to be appointed or selected or that representatives of additional beneficiary groups are to be appointed or selected from among their number.

5. In the case of a Self-Funded Drainage Board, the Council of Ministers shall, in determining the composition of the Board of Representatives, ensure that beneficiary groups are represented in proportion to their respective contributions to the operating costs of the Drainage Board.

6. Each member of the Board of Representatives shall hold office for a term of three years and shall be entitled to be re-appointed.

7. Each Board of Representatives shall have a Chairman. In the case of Centrally Funded Drainage Boards, the Chairman shall be the representative appointed by the Minister of Agriculture and Food. In the case of Self-
Funded Drainage Boards, the Chairman shall unless provided otherwise in a decision of the Council of Ministers, be elected by the Board of Representatives from among its members.

8. Members of the Board of Representatives may be paid expenses or a salary pursuant to a decision of the Council of Ministers.

Article 42

Tasks of the Board of Representatives of a Centrally Funded Drainage Board

1. The Board of Representatives of a Centrally Funded Drainage Board shall be responsible to the Minister of Agriculture and Food for the operation of the Drainage Board. Its tasks shall include:

   (a) appointment of the Director of the Drainage Board;
   (b) approval of the draft accounts, proposed budget and annual report;
   (c) approval of the operation and maintenance plan;
   (d) approval of a work and staffing plan;
   (e) the awarding of contracts in accordance with the approved budget, work-plan and operation and maintenance plan;
   (f) monitoring the operation of the Drainage Board;
   (g) such other matters as may be specified in the statute.

2. The statute of each Centrally Funded Drainage Board shall be subject to the approval of the Ministry of Agriculture and Food.

3. The Board of Representatives shall meet at least once a month. Decisions of the Board of Representative shall be made by vote with each member holding one vote. The Chairman shall have a casting vote. The attendance of at least half of the members shall be required for meetings to be quorate.

4. The Executive Director of the Drainage Board shall be entitled to attend the meetings of the Board of Representatives but shall not be entitled to vote.

5. Each Centrally Funded Drainage Board shall maintain accounts and records in accordance with the provisions of this law and the accounts law.

Article 43

Tasks of the Board of Representatives of a Self Funded Drainage Board

1. The Board of Representatives of a Self Funded Drainage Board shall be responsible to the beneficiary groups for the operation of the Drainage Board. Its tasks shall be the same as the tasks of a Board of Representatives of a Centrally Funded Drainage Board set out in article 42. 1, except that it shall also have the power to:

   (a) approve its own budget and annual accounts;
   (b) make applications to the Council of Ministers for funding.

2. The statute of each Self Funded Drainage Board shall be approved by the Board of Representatives of the Drainage Board and a copy shall be filed with the Ministry of Agriculture and Food.

3. The Board of Representatives of each Self Funded Drainage Board shall meet at least once a month. Decisions of the Representative Board shall be made by vote with each member holding one vote. The Chairman shall be entitled to a casting vote. The attendance of at least half of the members shall be required for meetings to be quorate.
4. The Executive Director of the Drainage Board shall be entitled to attend the meetings of the Board of Representatives but shall not be entitled to vote.

5. Each Self Funded Drainage Board shall maintain accounts and records in accordance with the provisions of this law and the accounts law.

**Article 44**

**Statute of Drainage Boards**

1. The statute of each Drainage Board each shall regulate the organisation and operation of that Drainage Board. Each statute shall also:

   (a) describe the drainage service area of the Drainage Board, by reference to plans and maps;
   (b) contain the name and principal office of the Drainage Board;
   (c) in the case of Centrally Funded Drainage Board or a Self Funded Drainage Board, set out the organisational structure of the Drainage Board and describe the tasks and duties of the Executive Director;
   (d) contain provisions on the rights and duties of the members of the Board of Representatives;
   (e) contain provisions on the meetings of the Board of Representatives.

2. The Minister of Agriculture and Food may vary the statute of an Advisory Drainage Board or a Centrally Funded Drainage Board on the request of the Board of Representatives and shall approve any amendments to the statute of a Self Funding Drainage Board.

**Article 45**

**Staff of Drainage Boards**

A Centrally Funded Drainage Board and a Self Funded Drainage Board may employ staff and a workforce. The number of such staff and the duration of their terms of appointment shall be specified in the statute or by a decision of the Board of Representatives.

**Chapter 6**

**Supervision of the Irrigation and Drainage Sectors**

**Article 46**

**Books and Records**

1. Each Association shall keep the following books and records:

   (a) a register of members, which shall contain a description of the size and location of each member's landholding, and which should be reviewed and, as necessary, updated every three months;
   (b) a plan showing the irrigation service area;
   (c) a record of non-members who are supplied with water;
   (d) a record of the quantities of water received by the Association;
   (e) a record of the quantities of water or the number of irrigations received by both members and non-members;
   (f) a record of dues and charges owed and paid;
   (g) a record containing the minutes of the meetings of the Administrative Council;
   (h) a record of transactions and contracts;
   (i) an inventory of assets;
(j) a record of inspections and surveys of primary canals and/or irrigation systems transferred to the Association; and
(k) financial accounts in accordance with article 47.

2. Each Federation shall keep the following books and records:

(a) a register of members;
(b) a plan showing the primary canal, reservoir or other water course operated and maintained by the Federation;
(c) a record of non-members who are supplied with water;
(d) a record of the quantities of water received by both members and non-members;
(e) a record of dues and charges owed and paid;
(f) a record containing the minutes of the meetings of the Administrative Council;
(g) a record of transactions and contracts;
(h) an inventory of assets;
(i) a record of inspections and surveys of primary canals and other infrastructure transferred to the Federation; and
(l) financial accounts in accordance with article 47.

3. (a) Each Drainage Board shall keep the following books and records:

(i) a plan showing drainage service area;
(ii) a record of members of the Board of Representatives; and
(iii) a record containing the minutes of the meetings of the Board of Representatives.

(b) Centrally Funded Drainage Board and Self Funded Drainage Board shall in addition keep the following books and records:

(i) a record of maintenance, rehabilitation and construction contracts;
(ii) an inventory of assets;
(iii) a record of inspections and surveys of main drainage canals flood defence works transferred to the Drainage Board; and
(iv) financial accounts in accordance with article 47.

(c) Each Self Funded Drainage Board shall in addition keep a record of drainage charges owed and paid.

Article 47

Financial Accounts

1. Every Association, Federation, Centrally Funded Drainage Board and Self-Funded Drainage Board shall keep accounts of receipts and expenditure and shall prepare an annual balance sheet and income and expenditure statement.

2. The annual balance sheet and income and expenditure statement shall:

(a) in the case of an Association, be approved annually by the General Meeting;
(b) in the case of an Federation, be approved annually by the Administrative Council;
(c) in the case of a Centrally Funded Drainage Board Federation, be approved annually by the Board of Representatives and by the Minister of Agriculture and Food; and
(d) in the case of a Self-Funded Drainage Board, be approved annually by the Board of Representatives.

3. The accounts of receipts and expenditure of every Advisory Drainage Board shall be maintained by the Ministry of Agriculture and Food.
Article 48

Auditing of Accounts and Annual Returns

1. The accounts of each Association, Federation, Centrally Funded Drainage Board and Self Funded Drainage Board including the annual balance sheet and the income and expenditure statement, may be subject to an annual audit by the Supervisory Department. The Supervisory Department may, with the written approval of the Minister of Agriculture and Food, delegate its power to undertake audits to a suitably qualified and responsible body.

2. The Minister of Agriculture and Food may from time to time designate districts in which the reporting requirements specified in sub-article 3 are to apply. A notice containing such designations shall promptly be published in the ‘Government Gazette’.

3. Each Association, Federation, Centrally Funded Drainage Board and Self Funded Drainage Board which has its registered office in a district designated in accordance with sub-article 2, shall within 120 days of the end of its financial year file an annual return with the Supervisory Department, in the format determined by the Supervisory Department, together with a copy of its annual balance sheet and income and expenditure statement and a filing fee if so prescribed.

4. The members of the Administrative Council of any Association or Federation shall be liable to punishment in accordance with the Criminal or Administrative law if they unlawfully fail to file an annual return and a copy of the accounts within the period specified in sub-article 3.

5. The members of the Board of Representatives of any Centrally Funded Drainage Board or Self-Funding Drainage Board shall be liable to punishment in accordance with the Criminal or Administrative law if they unlawfully fail to file an annual return and a copy of the accounts within the period specified in sub-article 3.

Article 49

Register of Associations, Federations, and Drainage Boards

1. A Register of Associations, Federations and Drainage Boards shall be established at the Ministry of Agriculture and Food and maintained by the Supervisory Department.

2. The Register shall contain the following details of each Association:

   (a) the name of the Association;
   (b) the registered office of the Association;
   (c) the irrigation service area of the Association and the size and location of the Association’s irrigation service area;
   (d) the number of members of the Association;
   (e) the names, addresses and telephone numbers (if any) of the members of the Administrative Council and the Chairman; and
   (f) the date of filing of the most recent annual return.

3. The Register shall contain the following details of each Federation:

   (a) the name of the Federation;
   (b) the registered office of the Federation;
   (c) the primary canal and other infrastructure transferred to the Federation;
   (d) the members of the Federation;
   (e) the names, addresses and telephone numbers (if any) of the members of the Administrative Council and the Chairman; and
(f) the date of filing of the most recent annual return.

4. The Register shall contain the following details of each Drainage Board:

(a) the name of the Drainage Board;
(b) the registered office of the Drainage Board;
(c) the drainage service area of the Drainage Board;
(d) the names, addresses and telephone numbers (if any) of the members of the Board of Representatives; and
(e) the date of filing of the most recent annual return.

5. The Register of Associations shall be open to public examination during normal office hours.

**Article 50**

**Legal Supervision**

1. The Supervisory Department may routinely request copies of the accounts of Associations and Federations and Drainage Boards together with copies of books and records required to be maintained in accordance with this Law.

2. A duly authorised officer of the Supervisory Department may audit and inspect the books and records of an Association or a Federation:

(a) on the written request of a member of that Association or Federation; or
(b) if, having reviewed a copy of the annual return and accounts of that Association or Federation, there is in the opinion of the Director of the Supervisory Department, prima facie evidence of financial malpractice or irregularities.

3. If following an audit and an inspection of the books and records of an Association, the Supervisory Department finds evidence of financial malpractice or that the Association has not been operating in accordance with the provisions of this law, it may require the Administrative Council to call a meeting of the General Meeting where the Supervisory Department's findings can be presented to the members. If the Administrative Council fails to call a meeting of the General Assembly within 30 days, the Supervisory Department may suspend the Administrative Council and call such a meeting itself.

4. If the Administrative Council is suspended in accordance with sub-article 3., the Supervisory Department may appoint a temporary manager to run the Association until such time as a new Administrative Council is appointed by the General Meeting.

5. If, following an audit and an inspection of the books and records of a Federation, the Supervisory Department finds evidence of financial malpractice or that the Federation has not been operating in accordance with the provisions of this law, it may require the Administrative Council to call a meeting where the Supervisory Department's findings can be presented to the members of the Administrative Council. If the Administrative Council fails to call a meeting within 30 days, the Supervisory Department may suspend the Administrative Council and appoint a temporary manager to run the Federation until such time as a new Administrative Council is appointed by the members of the Federation.

6. If, following an audit and an inspection of the books and records of a Drainage Board, the Supervisory Department finds evidence of financial malpractice or that the Drainage Board has not been operating in accordance with the provisions of this law, it may refer the matter to the Minister who may suspend the Board of Representatives and appoint a temporary manager to run the Drainage Board until such time as a new Board of Representatives is appointed.
Article 51

Technical Supervision

1. The Ministry of Agriculture and Food may routinely request of Associations and Federations and Drainage Boards to provide information and documentation concerning the operation and maintenance of infrastructure which has been transferred to them in accordance with the provisions of this law.

2. A duly authorised officer of the Ministry of Agriculture and Food may enter upon and inspect infrastructure transferred in accordance with the provisions of this law and may require the Association, Federation, or Drainage Board to undertake specified works where this is necessary:

   (a) to ensure the proper maintenance of such infrastructure; or
   (b) to prevent damage or harm to that infrastructure; or
   (c) to prevent damage to state property or the property of third persons;
   (d) in the public interest.

Article 52

Servitudes

1. An Association, Federations and Drainage Board may obtain a servitude in accordance with the Civil Code.

2. Duly authorised officers of an Association, a Federation or a Drainage Board shall have the power to enter private land for the purposes of undertaking surveys and emergency works in respect of any infrastructure which has been transferred to the Association, Federation or Drainage Board.

3. Irrigation and Drainage system area together with relevant structures shall be registered in the office of fixed assets where the servitudes are also registered on the basis of this law. Amendments shall take place in the case of transferring structures, on the proposal of the Minister of Agriculture and Food.

Article 53

Emergency and Reserve Funds

Associations, Federations and Self Funded Drainage Boards may establish emergency funds and reserve funds and open separate bank accounts for such funds.

Article 54

Dissolution and Liquidation of Associations and Federations

Dissolution and Liquidation of Associations and Federations shall take place in accordance with the Civil Code.

Article 55

Dissolution and Liquidation of Drainage Boards

A Drainage Board may be dissolved by a decision of the Council of Ministers if the Drainage Association tasks no longer exist or if they can no longer be practically fulfilled by the Drainage Board or the continued existence of the Drainage Board is no longer required for other reasons. The Council of Ministers shall in any such decision, specify the procedures to be followed for winding up the Drainage Board.
Article 56

Offences

1. The following activities may be punished as administrative offences:

   (a) the construction, rehabilitation or modification of any irrigation system or drainage system without the permission of the Ministry of Agriculture and Food;
   (b) damage to an irrigation system, a drainage system or to flood defence works;
   (c) unauthorised construction activities on any irrigation system, drainage system or flood defence works;
   (d) the construction or erection of any building or structure, or the planting of trees closer than eight metres from the edge of any primary canal or main drainage system or closer than four metres from the edge of any other irrigation or drainage canal;

2. Administrative offences, as set out in article 56.1, shall be denounced by Associations, Federations and Drainage Boards. The judgement and punishment of such offences is a duty of the Chairman of the District Construction Police.

3. A person that commits administrative offences shall pay for returning the damaged structure to its previous state.

4. Administrative offences, as set out in article 56, will be fined from 10 000 (ten thousand) to 100 000 (one hundred thousand) leke.

Article 57

Complaints against the decision made by the Chairman of the District Construction Police shall take place within 5 days from the day of the announcement to the Director of the Construction Police that shall make a decision within 10 days. Complaints against the decision made by the Director of the Construction Police shall take place within 5 days from the day of the announcement at the District Court.

Article 58

Complaints at the court against the decision made by the Construction Police shall not suspend their punishment. In the case of a court final decision that accepts such a complaint, the person punished has the right to claim indemnity.

Article 59

Power to make regulations

The Council of Ministers and the Minister of Agriculture and Food may issue decisions and regulations for the application of this law.

Article 60

1. Law No. 7846, ‘On the Construction, Administration, Maintenance and Operation of Irrigation and Drainage Works’ dated 21 July 1994 as well as law No. 8111, “For an amendment of Law No. 7846, dated 21 July 1994” dated 28 March 1996 and other articles that are not subject to this law are hereby abrogated.

Article 61

Entry into force

This law will enter into force fifteen days after its announcement in the Government Gazette.
Land Reclamation Law of Romania

The Parliament of Romania adopts the Law hereof.

General Provisions

Art. 1. -
Land reclamation has as its objective:

a) the protection of any kind of land and buildings from floods and landslides, as well as the protection of water dams against silting and the regularization of water flows;

b) to ensure that soil has an appropriate level of moisture to permit or encourage the growing of plants including trees, vine, agriculture and forestry crops; the melioration of acid, salty and sandy soils, and protection against pollution.

Art. 2. -
(1) Land reclamation schemes are complex hydro-technical and agro-soil-ameliorative works, of preventing and averting of risk factors action – drought, excessive water, soil erosion and flood as well as pollution – on the lands with any destination, irrespective of their owners. These have as objective the development of production capacity of land and plants and the bringing in the economic circulation of non-productive lands.

(2) The land reclamation schemes comprise the following categories of works:

- Damming up and regularization of local interest water flows, through which it is ensured the protection of lands and any kind of buildings against floods, in principal, local water sources and emissary for water drainage;
- Irrigation schemes, rice plantations, through which it is ensured the controlled supply of the soil and plants with the needed water quantities for crop development and agricultural production increase. These schemes include water collecting, pumping, transportation, distribution and emptying works and, as the case may be, land levelling works;
- Drainage and desiccation schemes, that has a purpose the preventing and averting of excessive humidity at the surface of the land and within the soil, in view of ensuring the favourable conditions of land use. These schemes comprise excessive water collecting, transport and emptying works;
- Soil erosion control and melioration of lands affected by landslides schemes, through which land degrading processes are prevented, diminished or stopped. These schemes comprise works for soil protection, regularizing the water flowing on banks, drawing the torrential formations, stabilizing the quick sands;
- Soil-ameliorative schemes on salty pasture lands, acid lands and sands, on polluted lands, including with oil residues, with waste dumps from mine workings, on other unproductive lands, comprising also levelling-surface relief modelling works, of scarification, of deep breaking up, gutters and kennels, ploughing in straps with ridges, watering for salts washings, improvement as well as fertilizers carrying out, in view of development for agriculture and, as the case may be, forestry; forest schemes to setting up forest protective belts of agricultural lands and anti-erosion plantations; other technical solutions and new works resulted from the research activity.

(3) The land reclamation schemes may use the authorised water sources to ensure the water necessary for irrigation of agricultural crops and water supply of some localities, fish breeding arrangements, agricultural and industrial premises and protection of localities and buildings against the effects of landslides, flood as well as protection of water dams against silting.

(4) The carrying out of the land reclamation schemes at national level takes place based on the sector programmes and strategy and, at local level, according to the needs of local public administration, of interested legal and natural persons, based on the zone and local programs of territory arranging.

(5) The design, carrying out, and operation of land reclamation schemes are made in correlation with the water careful management, hydro-power, forest, thorough-fare works, in keeping with the land owners’ interests and with...
the town planning and territory arranging documentation, taking into consideration the environment protection prerequisites.

Art. 3. -
The purposes of this law are:

a) to regulate the legal status of ownership and use of land reclamation infrastructure and the afferent land as well as mechanisms for the creation and/or transfer of ownership, management and use rights in such infrastructure;

b) to institute the legal framework of creation and functioning of the National Land Reclamation Administration, hereinafter ‘Administration’, as a Romanian legal entity of national public interest to undertake specified tasks in the land reclamation sector in accordance with the provisions of this law;

c) to regulate the establishment and operation of Land Reclamation Organisations and Land Reclamation Federations in view of undertaking specific tasks in the land reclamation sector in the interests of their members as well as in the wider public interest;

d) to define the services to be provided by the National Land Reclamation Administration to Land Reclamation Organisations and Federations of Land Reclamation Organisations and the funding mechanisms for that;

e) to define the tasks of the central public authority, hereinafter ‘Ministry’, which is the lead policy making and regulatory public authority in the land reclamation sector;

f) to provide for the restructuring of the National Land Reclamation Company S.A.;

g) to create the penalties on breaching the provisions of this law and their enforcement.

Art. 4. -
For the achievement of land reclamation objective, this law is based on the following principles:

a) land reclamation schemes, irrigation or drainage systems and the flood protection and soil erosion control works shall be operated in an equitable manner so as to protect the interests of all beneficiaries;

b) beneficiaries of land reclamation activities, non-governmental organisations and the public shall be consulted and as appropriate involved in decision making at all levels so as to promote rational, effective and transparent decision making;

c) carrying out mainly by the landowners, on individual basis or through land reclamation organisations or federations of land reclamation organisations, of the operation, maintenance and repairs of the land reclamation schemes located on the lands they own, including the rehabilitation works, investment and paying the investment costs, the State intervening through the Administration and through granting funds from the State budget for completing the Administration’s or landowners funds for the public utility schemes, if the landowners cannot perform land reclamation activities themselves.

d) irrigation or drainage systems and land reclamation schemes shall be operated in such a manner as to prevent improper water use, over-watering, erosion and pollution and to promote the protection of the environment in accordance with environmental protection standards.

Art. 5. –
The definitions of certain terms used in this law are found in Annex No. 1 to the present law.

Land Reclamation Organisations and Federations of Land Reclamation Organisations

Art. 6. -
(1) Natural or legal persons which are owners, on the basis of a valid ownership or use title, of land served by irrigation or land drainage systems or flood defence or soil erosion control works may establish a Land Reclamation Organisation, hereinafter an “Organisation”, to undertake one or more of the following public interest tasks:

a) to deliver irrigation water, operate, maintain and repair an irrigation system that serves more than one land owner;

b) to operate, maintain and repair a drainage system that serves more than one land owner;

c) to maintain and repair flood defence works that protect the land of more than one land owner;

d) to maintain and repair soil erosion control works and undertake other land reclamation activities that protect the soil on the land of more than one land owner.
(2) The Organisations are public law legal entities with no patrimonial purpose, which are established and operated according to the provisions of this law.

Art. 7. -
(1) Each Organisation undertakes its tasks within its ‘territory’ which is a defined clearly delimited geographical area, arranged with land reclamation works, hereinafter ‘territory’.
(2) An Organisation that undertakes more than one task described in article 6 must identify its main task in its statute.
(3) An Organisation that has the operation, maintenance and repair of an irrigation system, as well as irrigation water distribution as its main task shall include the term “Irrigation Water Users’ Organisation” in its name, followed by the name of the locality where it operates, or another distinctive name.
(4) An Organisation that has the operation, maintenance and repair of a drainage system, as its main task shall include the term “Drainage Organisation” in its name, followed by the name of the locality where it operates, or another distinctive name.
(5) An Organisation that has the maintenance and repair of flood defence works as its main task shall include the term “Flood Defence Organisation” in its name, followed by the name of the locality where it operates, or another distinctive name.
(6) An Organisation that has the maintenance and repair of soil erosion control works as its main task shall include the term “Soil Erosion Control Organisation” in its name, followed by the name of the locality where it operates, or another distinctive name.

Art. 8. -
An Organisation performs the following tasks, in achieving the public interest activities:

a) the conclusion of land reclamation service delivery contracts according to the provisions of this law;
b) the provision of land reclamation services to its members;
c) the supply of irrigation water or performance of other land reclamation services, on a contract basis, to non-members who own or use land located within the Organisation territory in accordance with the provisions of this law;
d) the collection of charges from members and non-members for the services provided to them and recover the costs of such services;
e) the purchase, hire, operation, maintenance and repair of land reclamation and other necessary equipment;
f) the provision of training to its members for the preparation of irrigation or drainage systems or flood control or soil erosion control works operation and maintenance, labour safety, land reclamation techniques and promote use of new techniques and technologies;
g) ensure the proper guard and care to prevent or reduce damages and keep the integrity of the land reclamation infrastructure within the irrigation and drainage system or flood protection or soil erosion control works it owns or operates;
h) rehabilitation, modernisation and development of land reclamation infrastructure within their territory;
i) the entry into contracts for the supply of goods and services necessary for the undertaking of its tasks including the design and works for the rehabilitation, modernisation and development of land reclamation infrastructure within their territory;
j) the borrowing of money and the provision of security in accordance with the provisions of the in force legislation;
k) discharging of other tasks specified by this law.

Art. 9. -
(1) The sources of income of an Organisation may include:
a) irrigation services charges;
b) land drainage charges;
c) flood defence, soil erosion control and other land reclamation activities charges;
d) an annual subscription fee;
e) grants and legacies from donors and testators as well as sponsorships by observing the legal provisions;
f) subsidies granted from the state budget.

(2) The outstanding charges and subscription fees due to the Organisation by its members or non-members can be recovered on the basis of payment commitments signed by these, which are executable titles.

Art. 10. -
(1) An Organisation that supplies a service to a person who owns or uses land within its territory who is not a member of that Organisation is entitled to impose charges that cover the entire cost of the land reclamation service supplied to that person.

(2) The members of the organisations benefit from a reduction of land reclamation service charge according to the decisions of the General Assembly.

(3) In case of land owners benefiting of land reclamation activities other than irrigation the charges might be collected through the specialised departments of local public administration. The mechanism of collecting such charges and of reimbursing the expenditure made for performing the activity will be settled by issuing a framework-protocol approved by a common Order of the Minister of agriculture, forestry and rural development and of the Minister of administration and internal affairs on which base may be concluded, locally, protocols between the organisations and local councils on whose territorial range the Organisation’s territory is located.

(4) For recovering outstanding charges and fees incurred by members and non-members, the Organisation’s General Assembly may provide for pledges.

Art. 11. -
All surplus income over the expenditure in a financial year shall be retained within the Organisation and applied to the sinking or reserve fund, or used for the activity of the future years.

Art. 12. -
Any natural or legal persons which are owners, on the basis of a valid ownership or use title, of land located within the territory of that Organisation or which, according to the provisions of Law no. 213/1998 regarding the public property and its legal regime, manages or uses such land or land reclamation infrastructure in the public or private property of the State or of the administrative-territorial units may be a member of an Organisation.

Art. 13. -
(1) In view of getting the legal personality, the persons that manifested the will of becoming members of the Organisation, conclude the foundation document and the Organisation’s statute, in an authenticated form, under the sanction of absolute nullity.

(1) The Organisation’s statute is adopted with the simple majority of the votes of the participants in the Establishment Assembly, provided these participants own, manage or use at least half of the Organisation’s territory and agree to take over the entire responsibility of operating, maintaining and repairing the land reclamation infrastructure within the Organisation’s territory.

(2) The minimum content of the foundation document and the Organisations’ statutes is established by the Methodological Norms for implementation of this law, which also approves the form of the foundation and organisation documents.

(3) The Organisation established according to the law stays open and shall receive new members up to the level of the Organisation’s territory.

Art. 14. -
(1) The Organisations’ establishment procedures shall be provided for in the Methodological Norms for implementation of this law.
(2) On the basis of the endorsement from the Land Reclamation Organisations’ Regulatory Office, hereinafter ‘Regulatory Office’, the Organisations’ establishment is authorised by Order of the Minister, which also provides for their registration in the National Registry of Land Reclamation Organisations.

(3) The Organisation shall acquire legal personality as of the date of its registration in the National Registry of Land Reclamation Organisations.

**Art. 15.** –
(1) Every Organisation shall have the following leading bodies and committees:
   a) a General Assembly;
   b) an Administrative Council;
   c) an Internal Audit Committee;
   d) an Arbitration Committee for the resolution of disputes within the Organisation, hereinafter ‘Arbitration Committee’.

(2) The Administrative Council’s decisions are performed by the Director and executive technical and economical staff of the Organisation.

**Art. 16.** –
The organisation and operation of the Organisations’ leading bodies and committees is regulated in the Methodological Norms for implementation of this law, with the exceptions provided for in this chapter.

**Art. 17.** –
The leading body of each Organisation is its General Assembly consisting of Organisation’s members or their representatives that must meet at least twice a year and has the right of permanent control over the bodies provided for at art. 15, sub-article (1), letter b), c) and d).

**Art. 18.** –
(1) The statute of an Organisation that does not have a representative system shall specify the basis on which votes are to be allocated to each member at meetings of the General Assembly in accordance with area of land owned, managed or used or on any other equitable basis that will safeguard the interests of each member.

(2) A member may hold no more than two fifths of the total number of votes allocated.

(3) The members of an Organisation that does not have a representative system, as well as the owners that transfer for use the land they own to a person that does not meet the conditions provided for at art. 12 to be a member of an Organisation may be represented in General Assembly meetings on the basis of a special, authenticated proxy.

**Art. 19.** –
The Arbitration Committee resolves the patrimonial conflicts regarding the Organisation’s activity with respect to:
   a) the calculation and the amount of charges for the land reclamation services performed by the Organisation and other such charges, as well as fees;
   b) the way the members bear the operation, maintenance and repair costs for the land reclamation infrastructure used or owned by the Organisation;
   c) the delivery of irrigation water and performing of other land reclamation services at the terms and under established conditions, with the observance of the principle of equitable distribution and safeguarding the interests of all beneficiaries;
   d) any other patrimonial conflict between the Organisation and its members as well as between Organisation’s members.

**Art. 20.** –
(1) Any Organisation member who alleges that his rights have been unlawfully infringed, as provided for at art. 19, may lodge a complaint with the Chairman of the Committee.
(2) On acceptance of the complaint the Chairman shall call a hearing of the Committee within 14 days; both parties to the dispute shall attend the hearing themselves or by representative.

(3) The Committee shall analyse the complaint and hear evidence from both parties to the dispute. If the Committee considers that the complaint is not proved it shall admit or dismiss the complaint on grounded decision.

(4) A decision of the Arbitration Committee is final and binding for the conflicting parties and may only be contested in court within 30 days from its notification.

Art. 21. –
Members of the Administrative Council, the Internal Audit Committee and the Arbitration Committee are not employees of an Organisation.

Art. 22. –
(1) Two or more Land Reclamation Organisations may establish a Federation of Land Reclamation Organisations, hereinafter a 'Federation', to take responsibility for the operation, maintenance and repair of all or part of a land reclamation scheme that serves them jointly.

(2) A Federation operates, maintains and repairs a land reclamation infrastructure, which is located outside the territory of an Organisation to whom it could perform land reclamation services and which is functionally connected with the irrigation or drainage systems or the flood defence or soil erosion control works operated, maintained and repaired exclusively by those organisations.

(3) Federations are self governing public law legal entities with no patrimonial purpose that are established and function according to the law.

(4) Only the Organisations that benefit of a part or of the entire land reclamation scheme that is operated, maintained and repaired by the Federation and for which that Federation performs land reclamation services, may acquire the membership of a Federation.

Art. 23. –
(1) The Federations are established through the adoption by the member Organisations of the foundation document and of the statute, their minimum content is established by the Methodological Norms for implementation of this law, which include also the form of the foundation and organisation documents.

(2) The Federations’ establishment is performed with the observance of the same endorsement, authorisation, form and publicity conditions as those required for the Organisations’ establishment according to the procedures provided for in the Methodological Norms for implementation of this law.

(3) The Federations are organised and operate according to the provisions of the Methodological Norms of applying the present law.

Art. 24. –
The dissolution, liquidation and re-organisation of Organisations and Federations, as well as amendments to their statute are performed according to the Methodological Norms for implementation of this law, with the endorsement of the Regulatory Office.

Ownership and Use Rights relating to Land and Land Reclamation Infrastructure

Art. 25. –
The Irrigation Water Users’ Associations that are established pursuant to the Government Emergency Ordinance no. 147/1999 approved with changes by the Law no. 573/2001, that are re-organised, according to this law, in Irrigation Water Users’ Organisations, take over the mobile and immobile goods in their ownership or use, as well as:
a) Irrigation Water Users’ Association’s ownership rights relating to irrigation infrastructure including pressure pumping stations, hydro-technical constructions, together with the equipment and afferent land located on its territory, underground water pipes, as well as other such goods located on the Organisation’s territory and correlative duties;

b) Irrigation Water Users’ Association’s use rights relating to State or administrative-territorial private domain owned irrigation infrastructure including the pressure pumping stations, hydro-technical constructions, together with the equipment and the afferent land located on its territory, underground water pipes as well as other such goods located on the Organisation’s territory.

Art. 26. –
(1) Land reclamation infrastructure belonging to the private domain of the state, used by the Administration, national companies, stations and institutes of agriculture research and production, agriculture and forest educational units as well as to other public institutions that is located on the territory of, may be transferred on demand, free of charge, in Organisations’ ownership in accordance with the law.

(2) Land reclamation infrastructure belonging to the private ownership of administrative and territorial units may be transferred, on demand, free of charge, in Organisations’ or Federations’ ownership or management. The transfer of ownership shall be made by a decision of the local council, county council or Bucharest City council, according to the law.

(3) Following the provisions of Law No 213/1998 regarding the public ownership and its legal regime, the Organisations may get the ownership right on the land reclamation infrastructure that belongs to the state or administrative-territorial units’ public domain.

Art. 27. –
(1) Federations may gratuitously be granted indefinite use rights in respect of the scheme or part thereof which is in the state public property, observing the conditions of the law.

(2) Any such transfer shall be recorded in a transfer agreement which shall include provisions on the operation, maintenance and repair of the scheme, or part thereof, gratuitously transferred for use, according to line (1), as well as the period of use.

Art. 28. –
The Administration, Organisations and Federations are under a duty to ensure the proper guard and care of the land reclamation infrastructure they operate, maintain and repair, according to the law.

Art. 29. –
(1) The Administration manages the land reclamation infrastructure belonging to the public domain of the state, save for that located on the land included in the forestry fund in the public ownership of the state, managed by the National Regie of Forests - Romsilva.

(2) The list comprising the assets that form land reclamation infrastructure belonging to the public domain of the state is provided for in Annex No. 2 at this law.

Art. 30. –
Land reclamation infrastructure belonging to the private domain of the state located on the lands with agricultural destination operated by commercial companies with majority state owned share capital shall be transferred for the Administration’s management and shall be registered in its patrimony, with the corresponding reduction of their social capital, through the diminishing of the state’s participation.

Art. 31. –
The goods that form the land reclamation infrastructure belonging to the public domain of the state are transferred into the Administration’s management specifying the Administration’s duties in respect of operation, maintenance, repair and integrity safeguard of those assets.
Art. 32. –
The land reclamation schemes, the irrigation and drainage systems and flood defence or soil erosion control works may be of public utility, pursuant to the law.

Art. 33. –
(1) The Administration, Organisations and Federations may get, according to the law, a servitudes right over the land of an owner on technical and economical reasons, with the written consent of the land owners, pursuant to the law.

(2) In cases of emergency, the Administration, Organisations, Federations may enter a person’s land in view of performing inspections, remedies, removing the consequences of a disaster and applying measures for environmental protection.

(3) In the cases mentioned at sub-articles (1) and (2) the landowners shall be compensated according to the law for the damages inflicted on their land or crops.

Art. 34. –
For carrying out any investment, the withdrawal from the agricultural circuit of the lands served by land reclamation infrastructure belonging to the public domain of the state is performed by a Government Decision and in case of lands served by infrastructure belonging to the state or individuals private domain, on their demand, shall be performed by a Ministerial Order.

The National Land Reclamation Administration

Art. 35. –
(1) Within 60 days from the coming into force of this law, the National Land Reclamation Administration is established by re-organisation the National Company Land Reclamation S.A., which is divided in view of privatisation according to the principles established by this law.

(2) The Administration is a Romanian legal entity of national public interest and operates on the basis of economical management and financial autonomy under the Ministry’s authority.

(3) The seat of the Administration is in Bucharest, 35-37 Oltenitei, sector 4.

(4) The Administration performs its activity according to the legal provisions in force and to the Organisation and Operation Regulation that shall be approved by Government Decision.

(5) The Administration has within its structure Branches without legal personality, composed of management units at the land reclamation schemes level or at the land reclamation schemes groups’ level.

Art. 36. –
(1) The Administration performs the following activities:
   a) to operate, maintain and repair land reclamation schemes declared of public utility;
   b) to undertake investment regarding the rehabilitation of existing land reclamation schemes and construction of new schemes;
   c) to undertake public awareness and training activities regarding the land reclamation sector;
   d) to carry out and ensure operation of the national surveillance, assessment, forecast and early warning system on the environmental and economic impacts of land reclamation activities;
   e) through the land reclamation schemes under its management to insure also the water supply for some localities, fisheries, agricultural and industrial sites, according to the law;
   f) to perform land reclamation services for Organisations, Federations and other natural or legal persons;
   f1) to perform international cooperation activities, within the limits of the authorisation given by the Ministry;
   g) to perform land reclamation services for Organisations, Federations and other landowners;
   h) to perform other public interest tasks specified by this law.
(2) In performing its activities the Administration applies the principles of achieving the land reclamation objectives
established by this law, manages efficiently its own resources and those transferred in its management, through their
maximum profitable rendering and, at the same time, assures the integrity and sustainable operation of land
reclamation schemes under its control and concludes contracts with third party suppliers for the procurement of
goods and services, observing the legislation regarding public procurement of goods and services.

Art. 37. –
(1) The Administration shall operate, maintain and repair land reclamation schemes in the public or private domain
or the state declared of public utility.

(2) The initial list of land reclamation schemes managed by the Administration shall be comprised in the
Administration’s Organisation and Operation Regulation.

(3) A land reclamation scheme or an autonomously functional part of a land reclamation scheme is declared of
public utility pursuant to the criteria established in the Methodological Norms of applying this law.

(31) Annually, according to the fulfilment of the criteria established according to line (3), the list of the schemes
managed by the Administration is changed or completed and is approved through Government Decision, at the
Administration’s proposal.

(4) The costs of undertaking the activities specified at sub-article (1) shall be born from tariffs charged for services
provided in accordance with the provisions of this law and supplemented from public funds.

(5) Annually, by Government Decision, at the Ministry’s proposal, the level of budgetary allowance on activities
and land reclamation schemes of public utility as well as the percentage in the operation, maintenance and repair
costs to be born from tariffs and the percentage to be born from the state budget shall be approved for land
reclamation activities other than irrigation.

Art. 38. –
(1) If a land reclamation scheme or a part of a land reclamation scheme is no longer complying with the criteria
provided for at art. 37 line (3), a Government Decision shall withdraw its public utility statute and, as the case may
be, shall be transferred from the public domain to the private domain of the state or administrative-territorial units.

(2) The land reclamation schemes or parts of land reclamation schemes provided for at line (1) may be:
   a) transferred in an Organisation’s or Federation’s ownership or gratuitous use under the law;
   b) sold to a private buyer under the law;
   c) leased or hired under the law;
   d) conserved for a period of up to three years;
   e) taken out of operation under the law;
   f) capitalised under the law.

(3) Turning a land reclamation scheme or a part of a land reclamation scheme into conservation shall be carried out
by insuring its guard and proper deposit of the dismantled pumping equipment and installations.

(4) The conservation and guarding expenses shall be born by state budget subsidies

Art. 39. –
The Administration will fulfil the following duties:
   a) draws up and implements annual plans for the operation, maintenance and repair of land reclamation
      schemes declared of public utility;
   b) prepares draft income and expenditure budgets and activity plans for the next financial exercise;
   c) annually maintains the inventory of operational irrigation schemes;
   d) prepares draft tariffs for the land reclamation services;
e) prepares studies, designs, annual programmes and proposals for investments in the rehabilitation of existing land reclamation schemes or the construction of new schemes and supervises the implementation of such investments;
f) monitors the environmental impact of land reclamation activities and take mitigating or corrective measures as necessary in accordance with applicable environmental legislation;
g) ensures the proper guard and care of the land reclamation infrastructure within the land reclamation schemes it manages, operates, maintains and repairs;
h) permanently monitors the state of land reclamation schemes under its management;
i) undertakes measures to prevent and protect land reclamation schemes under its management from action of risk factors and natural disasters, inclement weather and accidents at hydro technical constructions;
j) prepares and implements emergency response plans;
k) issues licences and technical advice for the installations that shall be located and construction to be executed in the area of land reclamation schemes under its management;
l) elaborates and finances its own research, design and information technology plan;
m) coordinates and methodologically advises the quality technical control of the operation, maintenance and repairs of the land reclamation schemes performed by its territorial Branches;
n) endorses technical documentation, contracts and funds the investment works contracted with third party suppliers and checks the works execution and acceptance, according to the law;
o) elaborates studies relating to the necessary staff in accordance with the staffing plan, the training and improvement of skills of the entire personnel, its selection and promotion within the subordinated units;
p) organises and approves the internal public audit plan, organises the preventive financial control and the record of liabilities, according to the law, performs economic and technical analysis on the organisation and undertaking of activities.

Art. 40. –
(1) In the fulfilment of its tasks the Administration will contract out with third parties the supply of research, studies, design, construction, maintenance and repair services, including the provision or hire of equipment necessary for the fulfilment of its tasks, as well as intervention equipment to deal with emergency situations by observing the relevant in force legislation on public procurement.

(2) The current maintenance activities in the land reclamation schemes of public utility, performed by the Administration, shall be excepted from the provisions of line (1).

Art. 41. –
(1) The funding of the Administration’s current expenses shall be ensured from both its own income and subsidies from the state budget.

(2) The investment expenses may be entirely or partially covered from the state budget, as follows:
   a) new investments or in progress one regarding the land reclamation infrastructure in the state’s public domain, entirely from the state budget, and those regarding the land reclamation infrastructure in the state’s private domain, partially from the state budget;
   b) studies, design and research related to its object of activity, entirely from the state budget;
   c) independent endowments afferent to the land reclamation schemes in the state public domain, entirely from the state budget;
   d) survey of land reclamation works from the infrastructure belonging to the public domain of the state and for specialty consultancy referring to these works, entirely from the state budget;
   e) other such expenses, according to the law, entirely from the state budget.

(3) The own income of the Administration comprises:
   a) irrigation services charges to beneficiaries for the supply of irrigation water, the maintenance and repair of the irrigation schemes declared of public utility;
   b) drainage, flood defence and soil erosion control services charges to beneficiaries relating to operation, maintenance and repair of the land reclamation schemes declared of public utility other than those related to irrigation;
   c) interest on deposits and available sums in bank accounts;
d) interest and penalties levied for the outstanding service charges;
e) water supply services charges for localities, agricultural and industrial sites, fisheries, rain, household and industrial water discharge schemes, observing the regulations in force;
f) tariffs for issuing technical and specialty endorsements as well as the endorsements and agreements of taking land out of agricultural circuit;
g) the sums cashed in for the taking out of operation of the land reclamation infrastructure, as a result of taking out of agricultural circuit of the areas covered with land reclamation works;
h) capitalization of the wooden material resulted from the maintenance and regeneration works in the forestry plantations for soil erosion control.

(4) Subsidies from the state budget may be granted to the Administration in respect of covering totally or partially the necessary administrative, material and staff expenses, as follows:

a) the operation, maintenance and repair of land reclamation schemes declared of public utility not being irrigation schemes, totally from the state budget;
b) actions of flood, inclement weather and accidents at hydro-technical construction defence as well as for establishment of defence materials and means stocks, intervention and forecasting means, fixed means and protection, safety and bedroll equipment, performed according to the in force norms, totally from the state budget;
c) rehabilitation of the state public domain infrastructure in the existing land reclamation schemes or the conservation of ceased or temporarily ceased investment objectives, totally from the state budget;
d) rehabilitation of the state private domain infrastructure in the existing land reclamation schemes, partially from the state budget;
e) environmental protection by land reclamation works, monitoring of such works impact, totally from the state budget;
f) undertaking public awareness and training activities in the land reclamation field, partially from the state budget;
g) operating the national surveillance, assessment, forecast and early warning system on the environmental and economic impacts of land reclamation activities, totally from the state budget;
h) conservation and guard of the land reclamation schemes not operated, under conservation, totally from the state budget;
i) expenses with the salaries of the staff provided for in the central unit, territorial branches and management units of the Administration, as well as the current expenses for their operation, partially from the state budget;
j) guard of the land reclamation schemes outside the operation period, totally from the state budget;
k) performance of technological tests, exhausting and energy consume during non-operation, totally from the state budget.

Art. 42. –
In exceptional cases following a natural or unforeseeable man-made disaster that has caused the non-function of all or part of an irrigation scheme, the Government, at the Ministry’s proposal, may approve the technical measures and the necessary funds for remedies, removing the effects and the re-functioning of damaged infrastructure.

Art. 43. –
(1) The patrimony of the Agency will be formed by taking over a part of patrimonial assets of National Company Land Reclamation S.A. and will consist of assets belonging to the private domain of the state necessary for the performance of its tasks, as well as intangible goods such as management and use rights over property that will remain in the public or private domains of the state, according to the decision of General Assembly of National Company Land Reclamation S.A. share holders.

(2) The value of Administration’s initial patrimony shall be established on the basis of the data in the last annual National Company Land Reclamation S.A. accountancy balance and shall be included in the Administration’s Organisation and Operation Regulation that shall be approved by Government Decision.
Art. 44. –
The transfer of patrimony will be recorded in a protocol signed by the Administration and the National Company Land Reclamation S.A. and approved by Minister’s Order. The protocol will contain in an annex the inventory of taken over assets.

Art. 45. –
(1) The Administration shall be directed by an Administrative Council whose members are appointed by Minister’s order and activity regulated by the Administration’s Organisation and Operation Regulation.

(2) The day-to-day activity of the Agency shall be directed by a General Director. The Administration’s operations shall be coordinated by Executive Directors who are Administration’s employees, approved by the Administrative Council and appointed by the General Director.

(3) The day-to-day operations of territorial Branches shall be directed by Directors.

Art. 46. –
(1) The Administrative Council comprises 7 members of whom:
   a) two are specialists within the Ministry responsible for land reclamation sector;
   b) one is nominated by the Minister of Public Finance;
   c) one is nominated by the central authority in water sector;
   d) three are nationally recognised experts in the field of land reclamation.

(2) Members of the Administrative Council are not Administration’s employees.

(3) The Administrative Council appoints a secretary who is not its member.

Art. 47. –
(1) The members of the Administrative Council will be appointed at the proposal of the authorities they are a part of, by a Ministerial Order, for a term of 5 years, with the exception of the Ministry’s appointees who will hold the position of Administrative Council member for as long as he/she remains in position in the Ministry.

(2) Members of the Administrative Council and its secretary will receive a sitting allowance that is paid from the Administration’s budget. The amount of sitting allowance shall be approved by Minister’s Order on the Administrative Council’s proposal and will not exceed 20% of the General Director’s salary.

Art. 48. –
The tasks of the Administrative Council include:
   a) presentation of a quarterly and annual report to the Minister on the activities and performance of the Administration;
   b) approval of the draft annual Administration’s financial accounts following analysis of General Director’s report and their submission for approval by the Minister;
   c) approval of the draft annual income and expenditure budget, program of activities for the next financial exercise and annual Administration’s performance indicators for submission for approval by the Minister;
   d) approval of the appointment of Executive Directors and the Branches’ Directors upon the General Director proposal;
   e) approval of Administration and territorial Branches staff record and organisational structure upon General Director proposal;
   f) approval of proposed tariffs and tariff structures for irrigation water supply as well as other land reclamation services;
   g) continuous monitoring and review of the Administration’s financial and operational performance;
   h) approval on the proposal of the General Director of the distribution of surplus its own income towards capital investment and other reserve funds;
   i) assuring the organisation and operation of accountancy separately regarding own incomes and subsidies granted from the state budget, as well as regarding the irrigation activity and separately other land reclamation activities;
j) approval of General Director’s proposals of the distribution on branches and activities of the subsidies and allowances from the state budget provided for in the budget of the Ministry;

k) approval of internal regulations regarding the operation of the Administration;

l) approval of emergency response plans in case of accidents to the hydro-technical construction under its management;

m) approval of investment objectives to be carried out, which shall be financed from Administration’s own sources, credits or budgetary allocations or, as the case may be, proposal of investment objectives whose approval is under the competence of other central public administration bodies;

n) approval of contracting internal credits according to in force regulations;

o) approval of the annual and prospective programmes of activity regarding the investment objectives, operation, maintenance and repair of land reclamation works;

p) endorsement of investment projects for carrying out of new land reclamation schemes or works at the existing schemes to be submitted to the Ministry approval;

q) appointing of the specialists empowered to notice the infringement of the provisions of this law and to apply sanctions;

r) establishment of the General Director’s prerogatives in view of negotiating the collective labour contract;

s) approval of renting the goods in the state private domain, belonging to the Administration’s patrimony;

t) approval of any other measures for undertaking the Agency activity, within the revenues and expenses budget.

Art. 49. –

(1) The Minister will be entitled to dismiss a member of the Administrative Council under the following circumstances:

a) the member has been absent without permission from 3 consecutive meetings of the Administrative Council;

b) the member undertakes competitive activities, has a personal interest in a public procurement organised by the Administration or some other activity leading to an actual or potential conflict of interest with the Administration;

c) the member has been convicted of a criminal offence;

d) for other reasons, at the proposal of the Administrative Council’s chairperson.

(2) The Administrative Council may confer routine powers of representation on the Directors of branches at scheme level for undertaking their activities, and may also resort to experts for the study and resolution of certain issues.

Art. 50. –

(1) The Administrative Council will meet in session at least once a month. The Administrative Council meetings will be called by the Chairman.

(2) The Administrative Council will make decisions by vote with the absolute majority, will adopt its own rules of procedure. The debates of the Administrative Council meetings will be summarised in the minutes of the session.

Art. 51. –

(1) The General Director is proposed by the Administrative Council according to the law and shall be appointed by Minister’s Order for a five-year mandate that may be renewed. The General Director is hired on the basis of an individual labour contract and a management contract, annexed at the individual labour contract, concluded with the Administrative Council, in accordance with the legislation.

(2) The General Director will be responsible for the general management of the day to day operation of the Administration in accordance with the Regulation of Organisation and Operation of the Administration and decisions of the Administrative Council.

(3) The General Director will be subject to an annual evaluation, according to the law.

(4) The General Director will fulfil the following tasks:

a) to propose the organisational structure and staffing plan of the Administration and submit them to the
approval of the Administrative Council;
b) to prepare annually a report on his/hers activities and any time requested by the Administrative Council, the drafts of the Administration financial accounts for the current year, as well as the draft program of activities and draft budget for the next year;
c) to submit for approval by the Administrative Council the distribution of surplus extra-budgetary income towards capital investment and other reserve funds;
d) to analyse, together with the Executive Directors, the economic performance of branches and their integration within the revenues and expenses budget, to refer about its fulfilment to the Administrative Council and to establish the adequate actions;
e) to negotiate the collective labour contract jointly with staff representatives;
f) to hire and dismiss staff and to conclude individual employment contracts;
g) to conclude legal documents in the name and on behalf of the Administration in accordance with powers delegated to him/her by the Administrative Council;
h) to represent the Administration in relations with third parties, within the powers granted to him/her by the Administrative Council;
i) to ensure the fulfilment of performance objectives and criteria established together with the Administrative Council;
j) to delegate to the branches’ directors the tasks related to hiring and dismissing the staff, excepting the leading staff;
k) to discharge other powers entrusted to him/her by the Administrative Council or provided by the law.

Art. 52. –
(1) The staff of the Administration will be employed, promoted and dismissed in accordance with the applicable labour legislation, the Organisation and Operation Regulation of the Administration and with the collective or individual labour contracts and do not have the status of civil servants.

(2) The staff necessary for the operation of the Administration shall be taken over from National Company Land Reclamation S.A. according to the applicable legal provisions.

(3) The number of positions in the organisational structure of the Administration that shall be taken over from the National Company Land Reclamation S.A. will be established according to the Regulation of Organisation and Operation of the Administration. The number of staff taken over by the Administration shall be established according to the applicable labour norms and staff normative for organisation and undertaking land reclamation activities, as well as the labour protection legislation.

(4) The number of staff necessary for the Administration’s operation is established in its Organisation and Operation Regulation.

Art. 53. –
(1) The Administration operates at territorial level, through its branches, and at land reclamation scheme level or land reclamation schemes group level, through the management units under the territorial branches.

(2) The branches are units without legal personality, with economical-financial management, which keep the accounting evidence at checking balance level.

(3) The management units operate, maintain, repair and manage the land reclamation schemes and perform land reclamation activities within a defined area specified on the basis of functional considerations of the schemes or group of schemes these manage.

(4) The number of branches, their areas of responsibilities and their functional relationships with the Administration, as well as the number of management units within each branch their areas of responsibilities and functional relationships with the territorial branch are established in the Organisation and Operation Regulation of the Administration.
(5) The Director of each territorial branch of the Administration is hired according to the law and appointed by the General Director, with the approval of the Administrative Council. The managers of the management units are hired according to the law and appointed by General Director’s decision, at the branch Director’s proposal. The tasks and duties of the Branch Directors and of the management units managers are established in the Organisation and Operation Regulation of the Administration and their individual employment contracts.

Art. 54. –
(1) Each branch will have a Council to supervise on its performance, and each management unit will have a Council to supervise on its performance. These Councils include representatives of the Organisations, Federations and other beneficiaries of land reclamation services performed by the Administration. The Branch Councils include also locally recognised specialists in the land reclamation field. The Branch Councils submit to the Administration’s Administrative Council, and the management units’ Councils to the management of the branch they are subordinate, recommendations of improvement of the Branch’s or management unit’s performance.

(2) The Branch Councils’ tasks, the appointment conditions and procedures of their members are provided for in the Organisation and Operation Regulation of the Administration.

(3) For the performed activity, the members of the Branch Council and of the management unit Council are not remunerated.

Land Reclamation Services

Art. 55. –
The Administration supplies irrigation water, at the beneficiaries’ request, under the following conditions:
   a) based on long term service contracts with successive execution, hereinafter named *multi-annual contracts*;
   b) based on irrigation water delivery contracts with immediate execution, hereinafter *seasonal contracts*.

Art. 56. –
Multi-annual contracts shall be concluded for a period between three and five years.

Art. 57. –
The following charges are payable under a multi-annual contract:
   a) an annual charge;
   b) an irrigation water supply charge.

Art. 58. –
(1) The annual charge shall be calculated in respect of each irrigation water supply point at which the Administration delivers water to beneficiaries.

(2) The annual charge will cover the estimated maintenance and repair costs of the irrigation infrastructure in the public and in the private domain of the state, managed by the Administration.

(3) The amount of the annual charge payable in respect of each irrigation water supply point shall be calculated prior to the conclusion of the multi-annual contract.

Art. 59. –
The setting of charges for the irrigation water delivery and their periodical adjustment as well as the term of informing the users of the new annual charges, of concluding the multi-annual contracts and of payment of the annual charge by beneficiaries are provided for in the Methodological Norms regarding the calculation and payment of land reclamation services charges that are approved by Order of the Minister are issued with an endorsement of the Ministry of Public Finance.
Art. 60. –
(1) In case of non-payment by beneficiaries of the annual charges, on the due date, for the current year, the Administration may by written notice to terminate the service contract.

(2) A beneficiary whose service contract was terminated under conditions in line (1) may apply by conclusion of a new multi-annual contract in future years subject to payment of outstanding annual charges.

Art. 61. –
(1) A beneficiary may enter into a new multi-annual contract provided it gives notice to the Agency by 30 July of the year in which the contract would otherwise expire.

(2) The Agency shall conclude a new multi-annual contract or renew the ones in force provided that the demand of irrigation water supply subject to a valid multi-annual contract entails the use of more than 20% of the area served by irrigation supply points and distribution canals within the relevant scheme and the area of the entire scheme, or part of the scheme declared of public utility.

Art. 62. –
(1) The irrigation water supply charge is calculated on the water volume unit, the amount of the sum paid by the beneficiaries being in proportion to the volume of water supplied by the Administration to the irrigation water supply point.

(2) The water supply charge is set so as to cover the actual costs in conveying water from the water source or intake to the irrigation water supply point, both through the irrigation infrastructure in the public domain of the state and that in the private domain of the state, managed by the Administration. These transport costs include the Administration’s administrative, and power (electric and diesel) for water pumping and at the most 50% of the staff salaries and central seat, branches’ headquarters and other such expenses. That charge will not include the maintenance and repair charges that are subject to the annual charge.

Art. 63. –
(1) The Administration prepares the draft annual and irrigation water supply tariffs and submits them for approval to the Administration’s Administrative Council.

(2) The approved amount for annual and irrigation water supply charges is published in the ‘Official Gazette’, part IV, for the following year’s irrigation season by August 31 each year.

Art. 64. –
(1) Any beneficiary having an access right to an irrigation scheme under the Administration management may enter into a seasonal contract with the Administration pursuant to the law.

(2) The beneficiary, holder of a seasonal contract shall pay charges to the Administration calculated by reference to the volume of water consumed according to the contract’s provisions regarding payment prior to the delivery of the water.

Art. 65. - The Administration may charge beneficiaries who directly benefit from its drainage systems and schemes, flood defence and soil erosion control works under its management. Charges are calculated separately for each scheme or work by reference to the fixed and any variable costs, as the case maybe, of operating, maintaining and repairing that scheme or work.

Art. 66. - The service charges for other land reclamation activities than irrigation are annually calculated by the Administration on the basis of Methodological Norms, approved by Order of the Minister, and the charges amount is approved by the Administration’s Administrative Council.

Art. 67. –
(1) Subsidies from the state budget shall only be paid for maintenance and repairs at the irrigation schemes to Organisations and Federations and shall only be used towards:
a) the payment of the annual charge to the Administration or other water supplier in respect of irrigation water supply points identified in that multi-annual contract;
b) the payment of the water supply charge to the Administration or another water supplier in respect of the irrigation water supply points specified in that multi-annual contract;
c) the payment of the supply charges of electric and Diesel power necessary for the pumping of irrigation water through its own water delivery points specified in the multi-annual contract, to the electrical energy supplier.

(2) Subsidies for the next year irrigation season will not be paid unless and until the Organisation or Federation has paid its own contribution to the annual charges, until January 31 of the current year.

(3) The subsidies form the state budget for the fulfilment of payment obligations of an Organisation or Federation provided for at line (1), letters a) and b), are granted at their request and given directly to the Administration or to other irrigation water supplier.

(4) Subsidies for the reimbursement of costs in respect of the operation, maintenance and repair of irrigation systems and schemes will be payable up to a limited amount for each hectare at national level irrespective of the location of each irrigation water delivery point within the irrigation system or scheme. The subsidy amount is established proportionally with the area of land that is irrigated according to the multi-annual contract.

Art. 68. –
(1) The level of any estimated subsidies payable for the following year shall be notified by the Ministry to the relevant subordinated units and those will inform the users in under their area of jurisdiction by 1st September each year.

(2) The maximum level of subsidy payable to each Organisation and Federation shall be calculated by reference to each pressure pumping station or irrigation water supply point referred to in a valid multi-annual contract and the area of land within the Organisation’s or Federation’s territory expressed in hectares that is owned on the basis of a valid ownership or use title by members of the Organisation or Federation and capable of receiving irrigation water from that water supply point. Subsidy entitlements are calculated separately in respect of each pressure pumping station or other irrigation water supply point within an Organisation or Federation territory.

(3) Each year before any payment of subsidies the Ministry shall also determine the following:
   a) the maximum amount payable per hectare;
   b) the prior amount that must be paid by the Organisation as a percentage of the annual charge, as a percentage of the water supply charge per each irrigation water supply point, and as a percentage of electricity costs necessary for irrigation water pumping.

Art. 69. – For achievement of new irrigation schemes or works or rehabilitation of the existing ones, the beneficiaries may benefit of subsidies from the state budget to cover totally or partially the expenses made for their carrying out.

Art. 70. –
(1) The beneficiaries may benefit from subsidies from the state budget in respect of their liability to pay:
   a) the costs of operating, maintaining and repairing of land reclamation infrastructure under their management or ownership other than irrigation;
   b) costs of achieving new land reclamation schemes other than those for irrigation to cover totally or partially the expenses made for their carrying out.

(2) The allocations from the state budget for new investment shall be established with the approval of technical and economic indicators through Government Decision.
The Tasks of the Ministry

Art. 71. –
The responsibility for the co-ordination of land reclamation activities lies with the Ministry, or such other central public authority on which responsibility for the land reclamation sector is conferred.

Art. 72. –
(1) The Ministry assumes the main planning and policy-making role for the land reclamation sector and will prepare and periodically review the national strategy for the land reclamation sector for approval by Government Decision.

(2) The Ministry will prepare the draft national strategy for the land reclamation sector that must contain the following:
   a) a description and analysis of the current state of the land reclamation sector;
   b) an assessment of the main risks that may affect the sector, the costs of preventing, reducing or mitigating such risks;
   c) an identification of the short, medium and long term objectives to be realised in order to ensure the sustainable development of the sector including the rehabilitation of existing land reclamation schemes and criteria for scheme selection;
   d) the definition of the appropriate management measures, performance indicators, funding mechanisms and other measures necessary to prevent, reduce or mitigate identified risk factors and to achieve the sector objectives, including the undertaking of further research, consultation and/or the preparation of sub-sector strategies, as well as other relevant aspects for preparing the national strategy.

Art. 73. –
In the land reclamation sector, the Ministry has the following tasks:
   a) ensures that its activities and programmes regarding the land reclamation sector are co-ordinated with the plans, policies, programmes and activities of other ministries and public institutions.
   b) may propose and create technical advisory committees or may propose other facilities to the non-governmental organisations of public utility, which promote or prepare programmes and projects in the land reclamation sector and other related sectors.
   c) prepares and issues orders and regulations for the operation, maintenance and repair of land reclamation schemes, as well as for the diminishment of the area served by irrigation and drainage schemes, flood defence and soil erosion control works.
   d) attests persons and economic legal entities to undertake land reclamation activities including manufacturing and use of specific installation and equipment for such activities, according to the methodological norms approved by order of the minister;
   e) ensures the evaluation of security in operation and the control of observing security standards of the land reclamation schemes are performed by experts and specialists certified according to the law.
   f) issues technical norms and standards for land reclamation schemes that will ensure the prevention and reduction of pollution and a rational use of water.
   g) as for the construction of new land reclamation schemes and for the rehabilitation and modernisation of existing schemes financed from the state budget, on the advice of the Administration or on its proposal, endorses and approves the technical and economical construction documentation.
   h) organises and maintains the national surveillance, assessment, forecast and early warning system on the environmental and economic impacts of land reclamation schemes as a component part of national system for integrated environment protection monitoring, for all environmental factors.
   i) ensures that the organisation and operation activities of the surveillance, assessment, forecast and early warning system shall be financed from the state budget.
   j) organises, performs and maintains the cadastre of land reclamation schemes, in the agricultural field;
   k) approves the annual financial reports of the Administration;
   l) submits for the Government approval the Administration’s income and expenses budget, maintained within the provisions of the Ministry’s budget, the activity programme for the following financial exercise and the performance indicators;
   m) requires information and activity reports from the Administration;
n) approves the rehabilitation and modernisation of the existing land reclamation schemes and the carrying
out of new ones, at the Administration’s proposal;
o) applies the measures provided for at art. 38 line (2) letters b) and c) through the Agency of State
Domains, and those provided for at letters a), d), e) and f) through the Administration.

Art. 74. –
(1) The Regulatory Office of Land Reclamation Organisations shall be established as a separate department within
the Ministry. The Regulatory Office has in its structure specialists that perform their activity within the Ministry and
specialists that perform their activity within county or Bucharest directorates for agriculture and rural development.

(2) The list and tasks of the specialists within the directorates for agriculture and rural development are approved by
order of the minister.

Art. 75. –
The main tasks of the Regulatory Office will be:
a) to maintain the National Register of Land Reclamation Organisations;
b) to provide advice and assistance concerning the establishment and re-organisation of Organisations and
Federations;
c) to endorse the establishment of Organisations and Federations including their proposed territories;
d) to request information and reports from Organisations and Federations concerning their operation and
maintenance of infrastructure transferred to them in use or ownership;
e) to prepare draft Government decisions for the transfer of land reclamation infrastructure from the public
domain of the state to the private domain of the state;
f) to monitor the fulfilment of legal provisions and the mechanism of granting subsidies from the state
budget to Organisations and Federations;
g) to undertake inspections and audits of Organisations and Federations, including both technical and
financial audits, as specified in the law;
h) to endorse the dissolution, liquidation, re-organisation and amendments to the statute of Organisations or
Federations;
i) to provide technical assistance to Organisations and Federations;
j) to undertake other tasks specified in the law and in Minister’s Orders and Instructions.

Art. 76. –
For undertaking inspections of the land reclamation infrastructure, the specialists of the Regulatory Office may enter
an Organisation or Federation territory and may request the Organisation or Federation to execute some works
where necessary:
a) to insure the proper maintenance of this infrastructure;
b) to prevent the deterioration or putting out of order on the infrastructure;
c) to prevent the deterioration of infrastructure in state or third parties’ ownership;
d) to guarantee that the infrastructure is used in public interest.

Re-Organisation of National Company Land Reclamation S.A.

Art. 77. –
(1) Restructuring of the National Land Reclamation Company S.A. herein this law SNIF takes place in accordance
with Government Decision approving the global restructuring plan for the SNIF.

(2) SNIF global restructuring plan shall have the following objectives:
a) the maintenance and repairs services for the land reclamation infrastructure, which are to be performed
by the SNIF or by the commercial firms resulted from the SNIF’s splitting for the Administration and
shall be purchased through single source negotiation according to the law, in the first 3 years from the
date of the Administration’s establishment;
b) the nature of contractual relations between SNIF or the commercial firms resulted from the SNIF’s
splitting, on one side, and Administration, on the other side, after the expiration of the 3 years period
from the Administration’s establishment;
c) to identify the elements in SNIF’s patrimony that shall remain in state ownership;
d) to establish the privatisation methods of the SNIF’s patrimony components;
e) in case of components that shall be privatised, to identify which could be grouped together to create a viable commercial activity, to promote competition for service performing in land reclamation sector and to maximize state’s revenues;
f) to mention the privatisation or re-organisation method and the terms for each phase;
g) to provide for the state’s authority that shall have the leading role in privatising each component or group of components;
h) to mention the way in which the financing in insured and the way of managing the SNIF’s patrimony components which shall remain in state’s ownership;
i) to identify SNIF’s debts at the date of re-organisation and to identify the methods of covering them;
j) to identify the possible environmental requirements to prevent or mitigate the pollution effects and to specify the manner of achieving them;
k) to mention the method of redistributing or dismissal of SNIF staff that shall continue its activity.

(3) Until the transfer of part of the SNIF patrimony to the Administration that is necessary for its operation is completed, the SNIF will continue to provide land reclamation services to Organisations, Federations and other landowners, or legal entities that manage and use lands with land reclamation schemes.

Art. 78. –
The procedures for SNIF restructuring shall be specified by a Regulation approved by Minister’s Order.

Art. 79. –
The staff who have not been taken over through transfer by the Administration and will continue activity at SNIF shall keep their salary rights and other rights they previously had.

Art. 80. –
(1) The persons discharged by collective dismissal, made according to art. 68 to 75 of Law no. 53/2003 – Labour Code, between June 1st – November 30th, 2005, as a result of SNIF re-organisation, shall benefit of the following rights:
   a) at the time of dismissal, a sum equal two times the net medium salary on economy, in April 2005, communicated by the National Statistics Institute;
   b) unemployment allowance, established according to legal regulations in force, as well as a monthly income in completion. This income is equal with the difference between the net medium salary on the last three months before the dismissal, established on the basis of the elements in the individual labour contract, but no more than the net medium salary on economy in April 2005, communicated by the National Statistics Institute, and the level of the unemployment allowance.

(2) The completion income is granted monthly from the date of establishment of the right to unemployment allowance, as follows:
   a) on a 20 month period, for the employees with a seniority of less than 15 years;
   b) on a 22 month period, for the employees with a seniority between 15 and 25 years;
   c) on a 24 month period, for the employees with a seniority of more than 25 years.

(3) After the end of the period of granting unemployment allowance, the discharged persons, according to line (1), benefit, until the end of the period mentioned at line (2), of a monthly completion income equal with the net medium salary on economy in July 2005, communicated by the National Statistics Institute.

(4) If during the period of granting compensatory payments situations arise such as those mentioned in art. 44 of Law no. 76/2002 regarding the unemployment insurance system and stimulation of labour force employment, with ulterior changes, the right to unemployment allowance ceases.

(5) The sums necessary for granting the rights provided for at line (1) letter a) and b) and line (3) are met from the unemployment insurance budget, at article ‘Unemployment Allowances’.
(6) The sum granted at dismissal, as well as the monthly completion income, provided for at line (1), are excluded from payment of contributions to the state social insurances budget and to the National Social Health Insurance Fund.

(7) The monthly completion income provided for at line (1) letter b) is also granted to beneficiaries during the periods in which their right to unemployment allowance has been suspended or ceased, before the end of the period established for granting that allowance.

(8) The completion income has the same taxation regime as the unemployment allowance.

(9) The persons that are re-hired or retire, according to the law, during the period provided for at line (2), benefit until the end of this period of the completion income in the amount established in accordance with line (1).

(10) The amount of the completion income, established according to line (1), letter b), is changed each time the unemployment allowance is changed as a result of a modification in the gross minimum salary on economy, during the period mentioned at line (2).

(11) Only the discharged persons that concluded an individual labour contract with SNIF until April 1st, 2005, may benefit of the provisions of line (1).

(12) The persons that are re-hired at the same employer within 12 months from the date of dismissal shall return the sums received as completion income.

**Penalties**

**Art. 81.** –
The following actions are considered offences:

a) preventing, in any way, of the specialist empowered, according to the law, to inspect the land reclamation infrastructure or to perform operation, maintenance and repair works of this infrastructure, to fulfil his/her duties is punished with imprisonment from a month to 2 years or with fine;

b) failure of an Administrative Council’s chairperson or an Organisation or Federation director to submit to the Regulatory Office information on annual revenues and audited financial situations or to submit with ill-intention inexact situations and data in view of hiding the real facts, is punished with imprisonment from 3 months to 2 years;

c) the sale, mortgage or any other way of disposing of the goods owned by the Organisation by the Administrative Council chairperson or Organisation’s director, without the endorsement of the Regulatory Office is punished with imprisonment from 6 months to 3 years.

d) starting up the irrigation installation and applying crops watering on the land situated on an Organisation or Federation territory or within an irrigation scheme in the Administration’s management without a mandate from the Organisation or Federation or without prior conclusion of a seasonal contract with the Administration represents the offence of theft and is punished according to the Penal Code.

**Art. 82.** –
(1) The following actions are considered contraventions to the norms regarding the operation, maintenance, repairing and protection of land reclamation schemes:

a) non-observance of the provisions in the technical regulations and norms in force regarding the land reclamation schemes design, execution, operation, maintenance, repairing and protection;

b) non-maintenance and non-repairing of land reclamation schemes including the installations and equipment in the schemes, as well as the water waste or soil degradation as a result of non-observance of rules of watering equipment use and of the operational regulations, by works managers or by legal or natural persons who operate the works;

c) carrying out of agricultural works on the anti-erosion arranged lands without observance of the rules and technologies provided for in the approved technical and economical documentation, based on which the schemes were achieved, as well as the non-implementation of the anti-erosion agricultural techniques on the lands with erosion potential;
d) carrying out of constructions or setting up of plantations in the works protection area, without prior agreement of Administration, Organisation or Federation or, as the case may be, of other legal or natural persons operating these works;

e) cutting of trees, bushes and seedlings in the forest protection belts and plantations afferent to the works without observance of the forestry norms;

f) pollution of the land reclamation scheme’s area and of the afferent technical area, of the works or land protection area within land reclamation schemes;

g) carrying out of constructions or change or extension of the constructions in the land reclamation schemes, without the prior consent of Administration, Organisations and Federations or of these schemes’ holder or by infringement of the conditions for in the agreement;

h) putting into operation of constructions or installations in the land reclamation schemes situated in the protection area, without prior authorisation of the Administration, Organisations or Federations or of these schemes’ holder;

i) dismantling, deterioration and handling by unauthorised persons of the water gates, gratings, valves, basins and other land reclamation constructions and installations.

(2) The perpetration of contravention provided for at line (1) shall be sanctioned as follows:

a) those provided for at letter c) and d), with a fine from 5,000,000 ROL to 10,000,000 ROL;

b) those provided for at letter a), with a fine from 10,000,000 ROL to 20,000,000 ROL;

c) those provided for at letter b), e) and f), with a fine from 20,000,000 ROL to 50,000,000 ROL;

d) those provided for at letter g), h) and i) with a fine from 50,000,000 ROL to 100,000,000 ROL.

(3) The establishment of a contravention and application of sanctions are performed by specialists empowered by Order of the minister, according to the law.

Art. 83. –
The contraventions provided for at art. 82 apply in accordance with the provisions of Government Ordinance No. 2/2001 regarding the legal status of administrative offences, as approved and subsequently amended by Law No. 180/2002, with ulterior changes.

Transitional and Final Provisions

Art. 84. –
(1) The Irrigation Water Users’ Associations established in accordance with Government Emergency Ordinance no. 147/1999 on Irrigation Water Users’ Associations shall re-organise and re-register as Irrigation Water Users’ Organisations in accordance with the provisions of this law, in order to benefit of the rights granted by this law.

(2) The Irrigation Water Users Associations that fulfil the conditions regarding the establishment of the Organisations’ territory become, at request, Irrigation Water Users Organisations approved by order of the minister, provided for the Organisation’s statute to be adopted by the Irrigation Water Users Association’s members who own, manage or use at least half of the future organisation’s area, proved by an extract of the Register of Members. At the date of registering in the National Register of Land Reclamation Organisations, the Irrigation Water Users Organisation takes over all the rights and duties of the Irrigation Water Users Association.

(3) Within 30 days from the date of the Irrigation Water Users Organisation’s registering, the Irrigation Water Users Association which is re-organised shall transmit to the Organisation on the basis of a minute the owned goods and shall request the striking out of the Associations and Foundations Register. At the date of striking out of the Associations and Foundations Register, the Irrigation Water Users Association is actually dissolved.

Art. 85. –
(1) The Ministry will elaborate Methodological Norms for the implementation of this law within 60 days as from the entry into force of the present law. The Methodological Norms shall be approved by a Government Decision.

(2) The Ministry will prepare the long term national strategy for the land reclamation sector within 2 years from the entry into force of this law and will submit it for Government approval.
Art. 86. –
In the first 3 years from the establishment, the Administration shall contract the maintenance and repairs services procurement with SNIF, by single source negotiation, according to the law, in cases SNIF cannot perform these services, the Administration shall award the service contracts to third parties according to art. 40 line (1).

Art. 87. –
(1) Within 60 days from the entry into force of this law the Ministry shall prepare the global restructuring plan for the SNIF and submit it for the approval of the Government.

(2) Within 60 days from the entry into force of this law, the Ministry is authorised to make appropriate changes in SNIF’s and Administration’s budget and to submit it for Governmental approval, within the approved budgetary provisions.

Art. 88. –
(1) Within 90 days from the establishment of the Administration, the SNIF shall transfer to the Administration the part of patrimonial assets necessary for its operation with afferent rights and duties.

(2) The financing of investment works contracted by SNIF, in course at the date of the Administration’s establishment, is covered from the financing sources provided for in the approved technical and economical documentation, until they are finalised, according to the law.

Art. 89. –
The multi-annual contracts for the first year of Administration’s functioning shall be concluded for a period of 3 years. At their expiry they may be extended according to the provisions of this law.

Art. 90. –
Until December 31, 2005, the Irrigation Water Users Associations established under the Government Emergency Ordinance no. 147/1999 will be entitled to receive subsidies from the state budget provided that they will also conclude multi-annual contracts with the Administration or other irrigation water suppliers which they will need to assign to the new Organisation on their re-establishment and re-registration.

Art. 91. –
Until December 31, 2005, the economic entities and public institutions benefiting of subsidies from the state budget, directly or through the irrigation water supplier, at the date of coming into force of this law, for covering some of expenses categories in the land reclamation sector and holding in ownership, management or use arranged land that are not located on the territory of an Irrigation Water Users Association shall benefit of those subsidies for covering the electrical and Diesel energy of pumping within 75% of the maximum cap per hectare unitary at national level, for 2005.

Art. 92. –
Annexes No. 1 and 2 form an integral part of this law.

Art. 93. –
(1) On the date of entry into force of this law Government Emergency Ordinance No. 23/2000 regarding the setting up of National Company “Land Reclamation” – S.A. by reorganizing Autonomous Regie of Land Reclamation, published in the ‘Official Gazzette’, Part I, no. 36 of March 30, 2000, approved by the Law No. 440/2001 shall be amended, as follows:

1. Article 3 shall be supplemented with a new line (3) after line (2), with the following contents: “(3) The value of share capital available for National Company “Land Reclamation” – S.A. after taking over of a part of its patrimonial assets by National Land Reclamation Administration shall be established by the Administrative Council and shall be approved by resolution of the General Assembly of shareholders by fulfilment of the legal requirements of registration and publicity.”;

2. Article 4 line (3) shall be reworded and will have the following contents:
“(3) The production and administrative buildings together with their associated land, the installation and transportation means that will remain in the patrimony of National Company “Land Reclamation” – S.A. after handing over-taking over of a part of the patrimonial assets of this company by the National Land Reclamation Administration shall be registered in the share capital of the commercial company with a value registered in the accounts on the date of conclusion of the protocol of handing over-taking over.”;

3. Article 5 shall be reworded and shall have the following contents:
“Art. 5. - The National Company Land Reclamation – S.A. performs its activity in the land reclamation field, having as main object of activity performing of specialty services in this field for the National Land Reclamation Administration, Land Reclamation Organisations, Federations of Land Reclamation Organisations and other third party beneficiaries that perform land reclamation activities.”;

4. Article 5 in annex No. 1 shall be amended and will have the following contents:
“Art. 5. - National Company “Land Reclamation” – S.A. has as its aim the achievement of specialty works and designs in the land reclamation sector.”;

5. The introduction of article 6 line (1), Annex no. 1, shall be amended as follows:
“(1) The National Company “Land Reclamation” – S.A. by its branches have the following scope of activity:”;

6. Points 1 and 19 of article 6 line (1) shall be reworded as follows:
“1. operation, maintenance and repair of irrigation and pumping drainage works located on the inner scheme on the basis of a service contract concluded with the Administration;
19. careful management and guarding of its own assets”;

7. At article 6 line (1) in Annex No. 1 a new point shall be added, point 22, with the following contents: “22. undertaking of any other activities approved according to the statute and legal provisions.”;

8. Article 7 line (1) in Annex No.1 shall be amended as follows:
“(1) The share capital of National Company “Land Reclamation” – S.A. is composed of the value of assets in the private domain of the state left after handing over of a part of the initial patrimonial assets of commercial company to the National Land Reclamation Administration. The diminished value of National Company “Land Reclamation” – S.A. shall be established by the Administrative Council and shall be approved by resolution of General Assembly of shareholders by observing the legal requirements of registration and publicity.”;

9. Article 18 point 6 in Annex No. 1 shall be amended and will have the following contents: “6. approves the proposals of General Director regarding the distribution on branches of the allocations from the state budget.”;

10. Article 22 line (1) in Annex No. 1 shall be amended and will have the following contents:
“(1) For the fulfilment of its scope of activity the National Company “Land Reclamation” – S.A. uses its own financial resources, bank loans and other financial resources.”.

Art. 94. –
Within 90 days from the Administration’s establishment, the following shall be abrogated: art. 4 line (1), (2) and (4), art. 8, art. 10 and 11, art. 6 line (1) from annex no. 1 points 2, 9, 10 and 18, art. 6 line (2) from annex no. 1, art. 7 line (2), (3), (4) and (5) from annex no. 1 and annex no. 3 in the Government Emergency Ordinance no. 23/2000 regarding the establishment of National Company Land Reclamation S.A. by restructuring the Autonomous Regie of Land Reclamation published in the “Official Gazette” of Romania, Part I, no. 136 of March 30th, 2000, approved by Law no. 440/2001, published in the “Official Gazette” of Romania, Part I, no. 409 of July 24th, 2001.

Art. 95. –
In 2 years time after the establishment of the Administration, the Government Emergency Ordinance no. 23/2000 regarding the establishment of the National Company “Land Reclamation” – S.A. (SNIF) by the re-organisation of the Autonomous Regie of Land Reclamation, approved with changes and completions through the Law no. 440/2001 is repealed. After this date, SNIF is re-organized through division in two commercial firms, by
Government decision, insuring the performance of the land reclamation services and other services in the construction and trade field.

Art. 96. —
(1) At the date of coming into force of the Methodological Norms for applying this law, the following shall be abrogated: art. 2, art. 7 line (1) and (2), art. 10-14, art. 34 line (2) letter a) and art. 40 of the Government Emergency Ordinance no. 147/1999 regarding Irrigation Water Users Associations published in the “Official Gazette” of Romania, Part I, no. 493 of October 13th, 1999, approved by the Law no. 573/2001 published in the “Official Gazette” of Romania, Part I, no. 695 of November 1st, 2001

(2) The Regulatory Office established pursuant to art. 34 of the Government Emergency Ordinance no. 147/1999, approved by Law no. 573/2001, ceases its activity, its duties being taken over by the Land Reclamation Organisations’ Regulatory Office established according to this law.

Art. 97. —
Within 2 years after the entry into force of the present law Government Emergency Ordinance No. 147/1999 concerning the Water Users’ Associations, approved by the Law No. 573/2001 shall be cancelled.

Art. 98. —
As on the date of entry into force of the present law shall be cancelled the Land Reclamation Law No. 84/1996, published in the “Official Gazette” of Romania, Part I, no. 159 of July 24th, 1996, except for the provisions of art. 31 referring to the establishment and sanction of offences which shall be abrogated within 30 days from the coming into force of this law and Government Decision No. 611/1997 for the Approval of Regulations of Implementing of Land Reclamation Law No. 84/1996 published in the “Official Gazette” of Romania, Part I, no. 285 of October 21st, 1997, as well as any provisions against this law.
ANNEX No. 1

The Meaning of Some Terms in the Sense of the Present Law

Land reclamation scheme – a network of irrigation systems, drainage systems and flood defence or soil erosion control works that serve a defined land area and which includes associated land, buildings, equipment, access roads and infrastructure which are necessary to operate, maintain and repair the scheme and component systems.

Irrigation system – a hydraulically distinct network of structures, pumps, canals, channels, pipes that may be used to abstract and/or convey, distribute and apply irrigation water to a defined land area, and which includes associated land, buildings, equipment, access roads and infrastructure which are necessary to operate, maintain and repair the system.

Water courses regularization works – water courses beds arrangement consisting in river beds profiling, water courses deviation, bank consolidation and other such works for mitigating the economical and social unfavourable effects and restoring to agriculture and economical circuit of lands affected by floods and soil erosion.

Pedo ameliorative techniques – the aggregate of technical procedures and land levelling and moulding works, breaking up and scarification, insuring water discharge, ploughing for preventing soil degradation, salty lands washing, amendments and fertilizers application, deforestation that could be associated with other kind of land reclamation activities.

Protection area – the area contiguous to land reclamation infrastructure in which it is forbidden or restricted to build or operate the land within that area, in view of insuring works and buildings stability within land reclamation schemes and of preventing pollution.

Irrigation scheme – a large scale network of structures, pumps, canals, channels and pipes that can be used to abstract water from authorised water resources and distribute irrigation water to one or more irrigation systems, and which includes associated land, buildings, equipment, access roads and infrastructure which are necessary to operate, maintain and repair the scheme.

Drainage system – a hydraulically distinct network of pipes, canals, channels, structures and pumps that may be used to remove excessive water from a defined area of land and to convey that water to one or more specific points and which includes associated land, buildings, equipment, access roads and infrastructure which are necessary to operate, maintain and repair the system.

Drainage scheme – a large scale network of structures, pumps, canals, channels and pipes that can be used to convey from one or more drainage systems to a natural water course and which includes associated land, buildings, access roads and infrastructure which are necessary to operate, maintain and repair the scheme and component systems.

Flood defence works – a network of dykes, dams, levees and ancillary structures that aim to protect a defined area of land and water, from flooding and includes associated land, buildings, access roads and infrastructure which are necessary to maintain and repair those works.

Soil erosion control works – include the forming, contouring, shaping and ploughing of land as well as the construction, management, maintenance of repair of temporary and permanent infrastructure so as to reduce or prevent soil erosion and degradation, including the works for soil protection, regularizing the water flowing on banks, drawing the torrential formations and stabilizing the quick sands, forest schemes for establishment of forest belts for agricultural land protection and anti erosion plantations.

Land reclamation scheme declared of public utility – means a land reclamation scheme in the state public or private domain that is operated, maintained and repaired by the Administration in accordance with article 37 of this law.

Autonomously Functional Part of a Land Reclamation Scheme – the ensemble of land reclamation works and infrastructure elements within a land reclamation scheme which could be used and operate independently in case the rest of the land reclamation works and infrastructure elements within the land reclamation scheme are out of service.
The Land Reclamation Schemes Management – the whole of the activates performed by the Administration in view of fulfilling the necessary conditions for the operation, maintenance and repair of the land reclamation infrastructure within the land reclamation schemes declared of public utility, including the insuring of guard and protection of land reclamation infrastructure.

Land reclamation activities – the operation, maintenance, repairs, design and construction of irrigation or drainage systems, works and schemes, flood defence and soil erosion control works, as well as their rehabilitation and consolidation.

Land reclamation services – supply of irrigation water, emptying the excessive water from flooded land, protection of the land and any kind of construction from floods and landslides, protection of water dams against silting, melioration of acid, salty and sandy lands and the protection of soils against soil erosion and pollution.

Irrigation water supply point - the point at which the Administration or any other water provider abstracts or delivers irrigation water to beneficiaries. In the meaning of the present law, field hydrants are not considered as irrigation water supply points.

Land reclamation infrastructure – means irrigation systems and schemes, drainage systems and schemes, flood defence works and soil erosion control works.

Organisation – means a Land Reclamation Organisation established in accordance with article 6 and the following of this law.

Federation – means a Federation of Land Reclamation Organisations established in accordance with article 23 and the following.

Administration – means the National Land Reclamation Administration established in accordance with article 35 and the following of this law.

The Ministry – means the Ministry of Agriculture, Forestry and Rural Development or following a Government Decision some other Ministry that assumes responsibility for the land reclamation sector and the fulfilment of tasks specified in this law.

The Minister – means the Minister of Agriculture, Forestry and Rural Development or following a Government Decision some other Minister who assumes responsibility for the land reclamation sector and the fulfilment of tasks specified in this law.

Regulatory Office – means the speciality service within the Ministry responsible for the supervision of the establishment, operation, re-organisation and dissolution of the Land Reclamation Organisations and Federations, monitoring of their operation and regulation of their activity.

Beneficiaries – the land owners, Organisations and Federations that concluded a multi-annual contract with the Administration, as well as other land owners or persons that manage or use land according to the law and that concluded a seasonal contract with the Administration.
ANNEX No. 2

List comprising the goods that make up the land reclamation infrastructure belonging to the public domain of the state

1. Goods in the irrigation schemes made up of intakes, main pumping stations, including the reversible ones, re-lift pumping stations, irrigation water supply main and distributor canals and pipes up to the pressure pumping stations.
2. Goods in the land drainage schemes made up of main collector canals at gravitational and pumping land drainage works, including the pumping stations associated to them.
3. Dikes and dams of defence against flood and water course regularisation works.
4. Soil erosion control works.
Organizing and Functioning By-Laws of WUAs in Romania

Water Users’ Organization: ..........................................
Locality ..............................................................
County ............................................................... Telephone/Fax .....................................................

APPROVED,
in the General Assembly on .................

President of Administrative Council,

Organizing and Functioning By-Laws

Chapter I. Generalities

1. This Organizing and Functioning By-laws sets the internal organizing and functioning rules of Water Users’ Organization ........................................, hereinafter WUO, ............., with cu organization quarter in locality ............., county ............., registered in the National Register of the Land Reclamation Organizations under no. ........ on ............

2. These regulations are drawn up in accordance with the provisions referring to the Water Users’ Organizations comprised in Land Reclamation Law no. 138/2004, as subsequently amended, and in the Methodological Norms for implementation of this law.

3. The provisions of these regulations develop, clarify and elaborate on the provisions of WUO statutes, adopted by the setting up assembly on .................

4. These regulations are mandatory for all WUO members, employees and elected bodies.

5. These regulations might amend at the proposal of the Administrative Council or Auditing Committee, representatives of WUO members or the Regulatory Office of Land Reclamation Organizations, with the approval of the WUO General Assembly.

Chapter II. Organizational Structure

6. Organizational structure of WUO is composed of governance bodies, committees and executive staff.

   The WUO governance bodies are:
   • General Assembly;
   • Administrative Council.

   The WUO committees are:
   • Auditing Committee;
   • Conciliation Committee.

   The executive staffs undertake its activity under the management of the Director, which reports to the Administrative Council, and comprise the technical-economical-administrative staff, electrical and mechanical specialists and hydro agents.

Chapter III. The General Assembly

7. The General Assembly is the overall managing body of WUO made up of representatives of WUO members, designated according to the representation system provided for by the statutes, through which the representatives adopt decisions and control the other elected bodies.

8. A WUO member may be represented, whether an owner or user of land located within the representation zone and designated as representative with vote of simple majority of members holding lands located within the
same representative zone. A WUO member may assign one or more representatives within the representation zone.

9. The minimum representatives in the General Assembly is of (...), and the maximum is (...).
10. The representatives attend the ordinary General Assembly twice a year, or as often as they are called by the Administrative Council in the extraordinary General Assembly between the ordinary General Assembly sessions.
11. Representatives are elected for a period of 3 years and may be re-elected.
12. Representatives of members may be replaced by request of the majority of members they represent, in cases provided by article 12 of the Minister of Agriculture, Forests and Rural Development no. 146/2005.
13. The representative or representatives in each representation zone call the meetings of representation zones any time necessary for adoption of decisions regarding the common interest of land holders located within the representative zone and mandatory before WUO General Assembly meetings. The call is made at least 5 days before by signing a summon table containing all WUO members land holders located within each representation zone.
14. Modification of identity data of representation zones shall be made at the proposal of the Administrative Council, with the approval of the General Assembly.
15. General Assembly meetings are called under conditions provided for by WUO statutes, under coordination of the Administrative Council president, or by delegating the Director or other person especially designated for this purpose, which will keep the evidence of accomplishing the legal calling procedure to be presented to the plenary of the General Assembly.
16. The General Assembly meetings shall be opened by the Administrative Council president or, in his/hers absence, by the person designated by the General Assembly to lead the meeting. After verifying the accomplishment of calling conditions and presence list to set the statutory character of the meeting, the person leading the meeting submits to the vote the proposed agenda and submits to the General Assembly debate the items written in the agenda. Prior to the beginning of debate committees for presence checking, vote validation and minutes of the meeting drawing up nomination.
17. The General Assembly meetings minutes shall be recorded in the Minutes Register, numbered and sealed, kept at the WUO quarters. The General Assembly Minutes Register may be made available for consultation purposes to any WUO member, Auditing Committee or Conciliation Committee, by their request.

Chapter IV. Administration Council

18. The Administration Council is composed of 3 - 7 members of WUO, elected by the General Assembly pursuant to the WUO statutes. The Administrative Council members may be re-elected for a mandate of up to 9 years.
19. In exercising their mandate the Administrative Council undertakes the following tasks:
   - Hires, dismisses and sets the competence limitations of WUO Director;
   - Hires the other WUO staff in accordance with the staffing needs approved by the General Assembly;
   - Calls the General Assembly meetings and prepares the draft agenda and the associated documents;
   - Authorizes the Administrative Council president to sign on behalf of WUO those contracts, conventions and other commitments set by General Assembly decision;
   - Solves any other problems according to the General Assembly decisions.
20. Each Administrative Council member represents a zone or a group of representative zones.
21. Administrative Council members shall receive as management allowance a percentage up to 20 % of the Director salary in proportion of the working plan and WUO budget.
22. The Administrative Council members allowance shall be paid on the basis of a wage-sheet.
23. The Administrative Council shall meet in sessions at least once a month.
24. The Administrative Council shall be organized and operates pursuant to the provision of its own Operation Regulations ruling the calling procedure, responsibilities on setting the agenda and meetings arranging, management, debating and registration in minutes, Administrative Council archive organizing and reporting to the General Assembly.
Chapter V. Executive Staff

25. The WUO Director selects pursuant to a procedure approved by the Administrative Council and is nominated by the Council to undertake the following tasks:

- Current WUO executive management;
- Preparation of draft documentation to be analyzed by the Administrative Council in accordance with its instructions;
- Attendance to the Administrative Council meetings, without a voting right;
- Adoption of steps ensuring effective and efficient operation, maintenance and repairs of irrigation infrastructure;
- Adoption of necessary steps for accountancy organizing and management, up-keeping of registers, formbooks and financial situations, pursuant to the law;
- Issuance and awareness to public knowledge of mandatory instructions for WUO employees;
- Performing operations through WUO banking accounts in accordance with the instructions of the Administrative Council and WUO internal regulations;
- Exercising other prerogatives entrusted by the Administrative Councils or provided for by the WUO statutes.

26. The Director and other WUO staff are employed on the basis of a labor contract, in accordance with labor legislation and they are not civil servants.

27. The executive staff number will not overreach the provisions and salary fund approved by the WUO budget.

28. The executive staff is hired on the basis of labor contract negotiated with the Administrative Council.

29. The executive staff tasks shall be distributed by Director Decision that takes place of a job description.

30. The executive staff works in one of the following departments:

- Electro-mechanical department;
- Technical department;
- Financial-administrative department.

Chapter VI. Membership

31. Farmers holding under ownership, titular of other real estate rights or using, on the basis of a valid title, lands located within the WUO territory may become WUO members on the approval of the General Assembly.

32. The membership fee is determined by the Administrative Council on the basis of the needfulness of maintenance and repairs works of irrigation infrastructure operated by the WUO and funds to cover administrative costs and shall be submitted to the General Assembly approval.

33. The membership fee shall be paid by members until March 31 of the current year.

34. The members not paying the membership fee may be enforced with penalties of 2% for every delaying day calculated on the outstanding amount of the membership fee payment. One member not paying the annual membership fee and asks for irrigation water delivery will pay an increased charge as land holders located on WUO territory who are not members. Suspension of membership may be disposed in the following cases:

- The membership fee was not paid for a year;
- The operation regulations was not observed and the person was warned or received sanctions for more years;
- The other obligation requested by the WUO membership and 2 warnings were sent by the Administrative Council.

35. A member excluded from the WUO would benefit of irrigation water delivery, but will pay an increased charge as WUO non-member.

Chapter VII. Conciliation Committee

36. WUO has a Conciliation Committee composed of members and deputies elected by the General Assembly for a period of 4 years. Re-election of a Conciliation Committee is possible for 3 consecutive

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1 At least 5 members and 3 suppliants.
mandates. Replacement of Conciliation Committee shall be made by shifting of the newest members with
those holding this position, unless otherwise decided by the General Assembly.
37. The members of Conciliation Committee shall be indemnified up to 20% of WUO’s Director salary to be set
by the Administrative Council and approved by the ordinary General Assembly.
38. In case one or more WUO members damage the WUO patrimony, the dispute will be solved through the
Administrative Council and WUO Director intervention. If the dispute may not be solved amicably by the
Administrative Council or WUO Director, the case will be forwarded to the Conciliation Committee and, if
not satisfactorily resolved for the involved parties, the case will be sent to the local court, as the case may be.
Court decision will be final and binding.

Chapter VIII. Financial and Asset Management Department

39. WUO has an Auditing Committee composed of 3 members and 3 deputies elected by the General Assembly
for 3 years.
40. The president of Auditing Committee will be elected by the members of such committees.
41. The president of Auditing Committee has to be accounting expert or certified accountant.
42. The members of Auditing Committee will be indemnified with up to 20% Director’s salary, which shall be
paid in proportion of the WUO available funds.
43. The Auditing Committee will review WUO operations and will draw up minutes on findings at the WUO
registering and accounts, which will be handed over to the Director, to be presented to the Administrative
Council to be discussed and on which proper steps to be taken.
44. The Auditing Committee will check on a semester basis the financial indicators and will prepare a checking
report.
45. The Auditing Committees will draw up an annual report before the end of January, the annual financial and
assets management report to be forwarded to the Director in order to be presented to the Administrative
Council for independent external auditing and, later on, to the ordinary General Assembly approval.

Chapter IX. Meetings

46. The Administrative Council meetings shall be held once a month at the end of each month. The calling will be
made in writhing indicating the date, venue and agenda. At the end of every meeting a minutes will be
prepared.
47. The Administrative Council will call for the ordinary General Assembly meetings twice a year during March
and September and in extraordinary meetings whenever necessary.
During Administrative Council sessions complaints and intimations from WUO members may be discussed,
informing the next General Assembly about that.

Chapter X. Planning

48. The Director will prepare the annual working plan to be presented in the Administrative Council meeting in
March to be submitted to the General Assembly approval.
49. The working plan shall be prepared by the hydro-technician engineer, chief electro-mechanic and the
accountant and shall be checked by the Director.
At the elaboration of the working plan the following will be considered:
• The chief electro-mechanic shall plan the maintenance and repairs works of pumps and electro-engines,
and maintenance and repairs PPSs;
• The hydro-technical engineer will plan the maintenance and repairs works of the on-farm underground
infrastructure, the working plan, maintenance and repairs of on-farm irrigation infrastructure;
• The accountant will plan the WUO accounting registering, drawing up of budget, and assets registration.

Chapter XI. Final Provisions

50. These Regulations come into force on the date of its approval by the General Assembly, any other previous
regulations being annulled on the same date. Any other previous rules, instructions and norms and verbal or
written understandings between WUO members and the Administrative Council, between the WUO members and the technical and administrative staff cease its validity.

These Regulations assign the Director, with the implementation of the Land Reclamation Law no. 138/2004, as subsequently amended, to enforce it, observe it and inform the Administrative Council on its observance.

51. These Regulations was drawn up on the basis of the Methodological Norms for implementation of Land Reclamation Law no. 138/2004, approved by Government Decision no. 1872/2005, and approved in the General Assembly on..................

**Administrative Council,**

President -  
Member -  
Member -  

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