The legal framework for water user associations - lessons learned
and challenges for the future

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1. INTRODUCTION

The aim of this paper is twofold. First of all it seeks to provide a review, or overview, of experiences regarding the development of the legal framework for water user associations (WUAs) in the countries of Central Asia and the Caucasus (the ‘region’). Secondly it seeks to examine some of the legal challenges and opportunities that may arise in the future by reference also to the legislative experience of the transition countries in central and Eastern Europe as well as countries in Western Europe and North America both as regards both the reform and implementation of legislation.

The scope of the legal framework for WUAs is rather broad. It includes:

- land tenure legislation, which governs the rights of farmers and WUAs to hold and use land;
- WUA legislation, which governs the establishment and operation of WUAs;
- irrigation legislation, which governs the transfer infrastructure to WUAs, water supply arrangements and the relationship between WUAs and the relevant irrigation agency (usually the Ministry of Amelioration and Water Economy or its successor);
- water legislation governing resource management and the allocation of water rights;
- tax legislation which sets out the basic legal rules concerning profit/turnover tax and value added tax; as well as
- environmental protection legislation which may have implications for WUAs as regards water pollution, wetlands and soil protection.

This is not to suggest that each of these topics is necessarily governed by a separate law. Or, that each country in the region has necessarily adopted a separate law to address each topic. Provisions on WUA establishment and operation and the irrigation sector may, for example, be found in the same law. Nevertheless for the purpose of discussion the different areas of legislation can be grouped under these headings.

The legislation considered in this paper is usually primary legislation (in the form of laws adopted by national parliaments) but in some cases secondary legislation (such as government decisions or decrees, or ministerial regulations) may be included.

Experience, including experience from the region, shows that legislation plays an important role in the establishment and development of sustainable WUAs. It is of course not the only factor that governs the success of an individual WUA or a national programme of WUA development. Economic issues, such as the availability of markets for farmers’ crops, social questions, the state of the irrigation infrastructure, climatic
conditions in so far as they affect the availability of water and a range of other issues can all have a major impact on WUA performance.

Put another way legislation is not a ‘panacea’. Good legislation cannot by itself guarantee the success of WUAs. On the other hand if the appropriate legal framework is not in place then it is extremely difficult, impossible even, to establish sustainable WUAs.

But this is not to limit the contribution that legislation can make to the process of establishing WUAs. For a start it acts as the ‘glue’ to keep the process on the right track. Law inevitably has a normative value and to the extent a clear legal framework will spell out to all actors involved in the establishment and operation of WUAs what they must do appropriate legislation can usefully guide irrigation sector reforms. Legislation can even be understood as having a benchmarking or quality control function. Compliance with legislation, the holding of elections and meetings, the preparation of accounts, the filing of returns are indicative of successful WUAs. At the same time, though, it is important to bear in mind the fact that WUAs are community based organisations in which local rules and local practices that evolve at the community level can play an important role. As far as possible, and particularly with regard to the laws that govern WUA establishment and operation, the legislation should provide an enabling framework that empowers WUAs and their members to make their own decisions – and occasionally their own mistakes.

In considering the experiences in the region the first point to come to mind is that even though the countries of the region were broadly in the same situation in 1991, as newly independent former soviet republics, the pace of reform has for a whole range of reasons varied from country to country, both in general terms and as regards reforms to the irrigation sector including the establishment of WUAs. This variation in the pace of reforms in fact offers a number of opportunities for countries in the region to learn from one another what works and what works less well.

For the purposes of the discussion that follows, this paper is split into three parts. The first part addresses what are termed the ‘first generation’ of reforms. It describes the legal questions that typically arose in the early stages of irrigation sector reforms and, where necessary and appropriate, the legislative responses that were typically adopted. In other words, part one contains a review of the types of reforms that have generally although not always been undertaken in the region. The second part, which is headed ‘second generation reforms’, considers ongoing reforms or reforms that are currently being actively discussed with a view to implementation in the near future. Finally the third part, entitled ‘third generation reforms’, seeks to peer into the future, to look at the types of issues that may become necessary in the years to come.

Having made this observation it immediately becomes clear that given the varying pace of reforms in the different countries in the region as well as the particular unique situations (and problems) that they may have faced the notions of the past and future are somewhat relative and indeed some of these classifications are somewhat arbitrary. In some cases what are described here as second generation issues were dealt with in the in first generation of reforms and so on, elsewhere what are described as third generation
reforms may have already been completed. That is the problem with a comparative analysis.

2. FIRST GENERATION REFORMS

2.1 Land tenure legislation

Land tenure legislation has obviously had a major impact on irrigation sector reforms. After it all it was land tenure legislation, and the land reforms that it heralded, that resulted in the dissolution of the former kolkhozes and sovkhozes, together with their irrigation brigades, and the distribution to farmers of the land that they used. Beyond the fact that it can be seen as lying behind the need for WUA establishment the specific content of land legislation can, and frequently does, have a major impact on the success of irrigation sector reforms and in particular the establishment of WUAs.

Experience shows that in order to successfully establish WUAs the farmers who will be their members need to have secure and relatively long term land tenure rights. Without land tenure security it is hard to conceive of farmers having the inclination to spend the time and effort to support the establishment of WUAs. This may seem an obvious point but it is surprising how many irrigation projects have tried to set up WUAs when farmers have lacked basic land tenure securely. And invariably failed.

At the outset, land ownership rights and land markets are not essential for successful WUA establishment. Such reforms may or may not be introduced subsequently in accordance with a country’s national policies. But farmers do need secure use rights, preferably for a reasonably long term if not of indefinite duration.

Land tenure legislation also needs to admit for the possibility of transferring irrigation infrastructure in ownership/use to WUAs even if this is not specifically mentioned in the law. One question that arose in a number of transition countries, including those in the region, was precisely who owned irrigation infrastructure, particularly in the case of irrigation systems that had previously been used by kolkhozes. In particular it was not always clear whether the infrastructure was collectively owned, stated owned or whether individuals could claim some form of notional share. In situations where this issue is unclear then a legislative response, which requires the former ‘on-farm’ systems to be transferred to WUAs (usually in use) will probably be necessary.

2.2 WUA legislation

Disregarding any similarities to customary irrigation practices, and because WUAs were a new concept for the region early references to WUAs in legislation tended to be rather brief if they existed at all. At best, water laws or irrigation laws made a reference to the possibility of establishing ‘water user associations’ without any further description of their function or how they were operated. For example, Article 24 (3) of the Azerbaijani Law on Amelioration of 1996 stated:
To organise operation and protection of amelioration and irrigation systems being in joint or individual ownership, to manage them, to collect water fees, to settle disputes arising during the use of water and to solve other issues, an association of water users could be established. These Organisation' activities shall be regulated by the legislation of Azerbaijan Republic.

Given the lack of substantive legislation the first WUAs were invariably established using existing legal forms including associations, companies and cooperatives. The problems with this approach were numerous and included:

a) **a lack of certainty as to the role/purpose** – companies and cooperatives typically seek to make profits. How could this be squared off with the stated non-profit nature of WUAs? At the same time, though, the main task of WUAs can be characterised as buying water from a bulk water supplier and selling it to its members and other farmers. How could this be reconciled with the limitations on commercial activities being undertaken by associations?

b) **inadequate provisions on establishment and governance** - in order to have a chance of success it is important to involve as many possible members in the WUA formation process and to ensure that there is genuine support for WUA establishment. Associations, companies and cooperatives can typically be established by only a handful of people. Sometimes legal rules, for example those relating to capital contributions, further restricted the possibility for all potential WUA members to participate at the outset. The potential for disputes within WUAs is rather high, Consequently, particularly clear and robust governance structures are needed that can take account of the specific nature of WUAs. The limited provisions found in laws on companies, associations and cooperatives were not up to this task;

c) **restrictions on precisely who could participate as a WUA member or in some cases a WUA founder** – in some countries the legislation restricted who, more specifically which type of person, could be a WUA member or founder;

d) **limited regulatory oversight** – using existing legal forms limited the possibility for regulatory oversight by the sponsor of WUA establishment, typically the ministry responsible for irrigation;

e) **tax problems** – uncertainty over the role/purpose of WUAs often also lead to difficulties in assessing their potential tax liability.

Analysis of the experience of Western Europe & North America (such as Germany, France, USA) where WUAs are long established showed that WUAs were generally established:

- as a specific type of legal form. In other words WUAs were established as WUAs;
- on the basis of specific and detailed legislation, such as a WUA law or irrigation law;
- under public, as opposed to private, law.

Responding to his analysis and the need to find solutions to the issues described above, many countries in the region adopted specific legislation to enable WUAs to be established as a specific type of legal form even if the concept of the body of public law,
a legal form not known under soviet law, was not specifically acknowledged. The key issue was that WUAs were established as WUAs and they had, and continue to have, a role that is halfway between the state and the private sector. They undertake a public service function yet are controlled in a democratic manner by their members.

The adoption of specific legislation also permitted a number of important issues relating to the specific nature of WUAs to be taken into account. These included:

- making explicit provision for a split fee structure based on the payment of an annual maintenance charge to cover a WUA’s fixed costs and an irrigation service fee payable in respect of each irrigation.
- specifying that WUAs are to focus on irrigation &/or drainage and related activities;
- conferring clear legal rights to membership open the owners or in some circumstances users of land within the service area of a WUA;
- clearly setting out the rights and duties of WUA members.

Furthermore in many countries the opportunity was taken to modify the internal institutional arrangements to replace the directly elected chairman and chief executive, whose role was often perceived rightly or wrongly as analogous to a state farm boss, with a professional manager reporting to a collectively responsible management board.

2.3 Irrigation legislation

Irrigation legislation, which in some transition countries also addressed the establishment and operation of WUAs was typically adopted and or modified to create an appropriate framework within WUAs could operate.

Apart from specifying the tasks and duties of the irrigation agencies, such laws typically provided for the possibility for water to be supplied in ‘bulk’ on a contractual basis to WUAs for delivery within their respective service areas.

An key issue was to confer what is effectively an exclusive rights upon WUAs to distribute water within their respective service areas. This is particularly important in circumstances where irrigation agencies conceive of WUAs as a threat to their ‘business’ and thus the livelihood of their staff. In FYR Macedonia for example in certain places irrigation agencies sought to compete with WUAs by selling water directly to farmers.

Early irrigation legislation typically specified the conclusion of annual contracts or was silent as to their duration. As will be seen this had implications for the water security of individual WUAs. Such legislation also provided for tariffs to be set for bulk water supply, sometimes by the government and also typically specified that WUAs to be entitled to set their own tariffs (including the bulk water supply costs) within their respective service areas.
Such legislation also typically provided for the transfer of irrigation infrastructure to WUAs, particularly in those cases where on-farm irrigation systems had fallen under state or local government ownership, although often without specifying in much detail how this was to be achieved.

### 2.4 Water legislation

As part of a general series of reforms many of the countries in the region adopted new water codes or laws in the early 1990s. In contrast to reforms in other sectors there were almost invariably heavily influenced by the soviet-era water codes that they replaced.

While in some countries these codes were nevertheless quite progressive elsewhere it seemed that the main reform was the removal of the word ‘soviet’ from the text.

Sometimes water codes contained brief references to WUAs but usually without going into any detail. What these early water codes often failed to do was to develop the notion of water security and water rights.

### 2.5 Tax legislation

Some of the early problems encountered by WUAs in respect of tax legislation arose from the fact the existing legal forms were used. Companies, for example, are prima facie liable to pay profit tax in respect of any excess of income over expenditure.

The adoption of a specific law could part of the way towards solving these kinds of problem. At the very least a clear statement in the WUA law to the effect that a WUA is a non-profit entity should be sufficient. In fact more explicitly and more accurately what is needed is a statement that any surplus of income over expenditure is to be retained within and not distributed among its members. After all a WUA needs to make a ‘profit’ in the sense just outlined otherwise it will become insolvent. Such a ‘profit’, surplus income, should be invested in a reserve or sinking fund to undertake long term repairs and/or an emergency fund to deal with sudden repairs.

Value added tax (VAT) is more complex. VAT is a relatively burdensome tax to collect as each person who is supplied with water by a WUA should receive a separate VAT invoice and the VAT so received should be forwarded to the tax authorities as specified in the applicable legislation, typically monthly or quarterly. This means a lot of paperwork and careful accounting at least during the irrigation season. Given that WUAs are not commercial entities a good case can be made that they should be exempt from VAT.

The problem though is that if the bulk water supplier, the irrigation agency, is also required to levy VAT then from the perspective of the WUA (if not the individual farmers who will still have to pay an element of the water charge to cover VAT) it is better that it also levies VAT as it will then be able to set off the VAT recovered against
the VAT it is required to pay to the supplier. As a matter of tax policy this may be more difficult to achieve.

3 SECOND GENERATION REFORMS

Under this heading are included reforms and other legal issues that usually have followed on from the first set of substantive reforms. In some countries these reforms have already started, or even been completed at the level of legislation even if they are not yet implemented. Elsewhere these issues have yet to be addressed at a substantive level.

3.1 Land tenure legislation

Alongside progress with the process of titling and registering privately held land plots, the second phase of land tenure reforms typically saw the gradual of introduction of longer term land use rights and in some cases land ownership rights leading to the creation of land markets. These developments in turn have implications for WUAs. Land transactions can see changes in WUA membership and WUA membership patterns.

Specifically land consolidation on the basis of land sales and or rental can have major impacts on the membership of WUAs and thus their governance. If large farms are created governance structures and voting allocations may need to be altered. This should not normally require changes to legislation but it is an important issue to bear in mind.

Another feature of the second ‘generation’ of reforms saw moves in various transition countries to record and register the rights of WUAs to use irrigation infrastructure including former on-farm systems and, in some cases, parts of the so-called ‘inter-farm’ infrastructure. Again new legislation is not usually needed or at least not primary legislation. Secondary legislation or administrative orders or instructions usually from the ministry or department responsible for land records will typically be necessary as the recording of the rights of WUAs is somewhat different to that pertaining to farmers or other legal persons. The actual process of recording the rights of WUAs is often a complex and time consuming process. A failure to record the rights over infrastructure of WUAs will be to store up problems for the future.

3.2 WUA legislation

Second generation reforms to WUA legislation are likely to clarify outstanding issues and consolidate achievements concerning the establishment of WUAs.

One key issue that may need to be negotiated is the relationship between WUAs and local governments. A key point to emphasize is that WUAs are by their nature non-political entities. There is simply no role for politics in irrigation management and any attempt to do so is likely to lead to problems. A particular danger for WUAs can arise when local politicians start to see WUAs as a potential powerbase for their ambitions. To this extent
Armenia provides an interesting example. A presidential decree was issued to ban officials from local government from holding positions in WUAs.

Second generation reforms can also include new legislation to permit the establishment of Federations of WUAs (‘Federations’). The basic idea is that a Federation can be established by a number of WUAs to take responsibility for the operation and maintenance an entire irrigation scheme or an element thereof such as a primary canal. Experience in other countries including Albania as well as German and to a certain extent India shows that Federations can work quite effectively.

If it is to operate successfully a Federation, like a WUA, needs to have independent legal personality. While the structure of a Federation can be simpler to that of a WUA – essentially it can have just a management board made up of representatives of each WUA in practice a WUA can be harder to operate given that it is even further away for the ‘community’ of water users. Furthermore Federations can be more challenging to operate. They operate larger items of infrastructure. Logistically the structures they operate are further apart and may cause more damage if they are not operated properly. Operators may need to travel further between gates. Communication between may be more difficult and thus the opportunity for misunderstandings and even conflict.

As regards drafting a complication is that while a Federation shares many of the features of a WUA, as the structure is somewhat different it is difficult to cross refer back to provisions on WUAs in the existing legislation. For example the foundation procedure may require the same technical steps but the potential participants will not be land owners but other WUAs. Consequently if a detailed provisions on Federations are to be adopted then it becomes necessary to draft quite extensive provisions even those these may reflect albeit not directly copy those relating to WUAs.

3.3 Irrigation legislation

Under the second phase of reforms we may see the introduction of provisions allowing for the transfer in use of more substantial infrastructure to Federations. These might include diversion structures, dams and reservoirs. The transfer of the latter will tend to raise issues relating to dam safety.

Mostly such transfers are in use although the possibility of transfers in ownership cannot be ruled out. A potential advantage for WUAs of a transfer in ownership would be increased security – and an understanding of the need to make capital provision for major repairs and renewal. This also may be a reason why WUAs may be reluctant to accept a transfer in ownership. In order to ensure that such a transfer is not abused it may be necessary to make provision in the law. The problem is that once an asset is transferred in ownership then all else being equal its up to the new owner (eg the WUA or Federation) to use and deal with the asset as it wishes. Consequently it is advisable to make provision in WUA legislation rather than irrigation legislation to restrict the ability of WUAs to transfer infrastructure without the approval of, say, the ministry.
Not all WUAs or Federations will survive. In some cases infrastructure is beyond repair or there is simply insufficient interest in irrigated agriculture. This may happen in the region. An important issue that may need to be addressed in irrigation legislation is how to identify the infrastructure that is to be retired. A further question is such ‘retirement’ is to be achieved. For pumping stations and even diversion structures the problem may not be so serious. At the very least they may be capable of being abandoned, if not demolished. Dams are another issue. The basic problem is that a dam cannot simply be abandoned. It will contain to store water irrespective of whether or not that water is put to use and as with any dam it will therefore raises issues of dam safety. Demolishing or deconstructing a dam is a hugely expensive process, one that may cost as much, if not more, than the costs of construction.

The possibility of increased water security is a key reason why farmers actively support WUAs. Annual contracts of the type which were initially provided for in most of the countries in the region offer little in the way of water security.

While the irrigation agency or other bulk water supplier will typically do its best to supply irrigation water, what if it does not? What if it is really negligent and farmers lose their crops as a result of its failure to supply irrigation water in the agreement quantity and/or at the agreed time? Irrespective of what the water supply contract is likely to say, a WUA is unlikely to seek to take a robust attitude in negotiations, let alone in litigation, if it cannot be absolutely sure that it will receive a similar contract the next year. The WUA may have an expectation that it will receive sufficient water but an expectation is rather different to a legal right.

Under the second generation of reforms we can see the introduction of long term water supply contracts that specify an annual allocation within a specified range dependant on water availability.

3.4 Water legislation

Under the heading of second generation reforms we can expect to see more substantive reforms of water legislation in order to provide for ‘Integrated water resource management’ and increased use of a river basin approach to management with the development of attendant basin based institutions.

With the impacts of growing populations and climate change the future is also likely to see increased pressure on water resources. Inevitably given that water resources are finite we will see increased questions relating to:

a) the allocation and re-allocation of water among user sectors;

b) the allocation and re-allocation of water among individual water users.

As water is by far the largest water use sector this is going to mean competition from other water use sectors for ‘agricultural’ water as well as, quite likely, increased
competition for water within the irrigated agriculture sector. There may be scope for water saving and new technology but this is not likely to be sufficient.

Instead there will be an increased need for secure legally binding water entitlements. This can best be achieved through the introduction of ‘modern water rights’ as found in the legislation of in Spain, Mexico and more recently the Kyrgyz Republic. A key feature of such rights is that they specify the quantity of water that be abstracted/used, either in volumetric terms in the case of a regulated river or as a share of the available water if not. Water rights apply to abstraction/use in a natural source eg river, stream, lake, groundwater. Thus they are to be distinguished from the contractual type rights discussed in the previous section. They are also long term – typically ten to fifteen years. Furthermore as legal rights they confer an important degree of security upon their holders both against the state, which may not re-allocate the water that is subject to a right except on the grounds of public need and against the payment of compensation (or the provision of water from an alternative source) and against third parties. As legal rights they may be enforced by the courts. As such they can be seen as being a type of property right or quasi property right

The importance of the introduction of modern water rights for the irrigation sector cannot be over-emphasized. In the case of direct abstractions where a WUA has direct access to a natural source then a system of modern water rights is the only means of conferring water security on a WUA. In the case of ‘indirect abstractions’ – where a WUA is supplied by an irrigation agency – it is equally important that the agency holds a modern water right, so that the water that it is bound to supply on the basis of long term water supply contracts is not re-allocated to other uses.

3.5 Tax legislation

The second generation of reforms should see the resolution of tax issues pertaining to WUAs including the question of VAT. This process should be assisted by the successful performance of WUAs over the years and a clearer understanding on the part of the relevant authorities as to their role or function. In other words it is important that the conditions are established such that WUAs can be subject to a specific tax regime. As regards WUAs in Germany for example, they are exempt from the obligation to levy VAT, while those in the UK are ‘zero rated’ for VAT meaning that they notionally charge VAT at the rate of 0% but may at the same time reclaim VAT on any goods or services that they purchase. Again it is important to note that these types of provision are contained in the relevant tax laws.

4 THIRD GENERATION REFORMS

Under his heading are the types of reforms that may be expected or envisaged as taking place in the future.

4.1 Land tenure legislation
As regards land tenure legislation much will depend on the national land policy followed in each country. In particular the introduction of land transactions is likely to see further land consolidation if this has not happened already with its resultant implications on WUA membership and internal governance structure.

### 4.2 WUA legislation

As WUAs become better established their very success can actually work against them as farmers start to take them for granted. In any event specific circumstances may conspire against WUAs, such as population sfts from the countryside to urban areas leading to land being left fallow.Ironically in such circumstances it may become more important to confer stronger legal powers upon WUAs.

Such powers might include:

- the right to force compulsory membership on all of those who hold land located within the service area of a WUA, as is provided for in the legislation of France and Germany;
- the right to force the compulsory payment of fees, particularly fees relating to the operation and maintenance costs as happens in the USA, UK, Romania (through the relevant subsidy system) and Albania;
- the recovery of outstanding fees through a variety of mechanisms including
  - the registration of outstanding charges for recovery by the court bailiff (eg UK, Albania);
  - through the local land tax system (as happens in India);
  - by conferring power on WUAs to place a lien over the land of a person in arrears and to force the sale of that land in the event that outstanding fee liability is not discharged (eg USA);
- the right to expropriate land (subject to the payment of compensation) where this is necessary for the operation of the WUA (eg UK, Germany, France etc).

Politically the possibility of undertaking such types of reform become easier as the WUA concept is better understood by farmers, government officials and politicians.

As regards the internal structure of WUAs another possible area of reform maybe to require the rotation of management board members. In order to ensure a degree of continuity the legislation might require, say, one third of the management board members to retire and (as appropriate stand for re-election) every two years rather than seeking to completely replace the entire management board at the same time.

Finally it may happen that WUAs begin to undertake wider environmental tasks as outlined below. This has already happened in some countries in Western Europe. It is an invariable rule that legal persons may only undertake the tasks for which they are established. In the case of WUAs these tasks are typically specified in the WUA law and may not necessarily refer to environmental issues. In order to undertake such tasks WUAs
need to have the legal right specified to so. Consequently in Germany for example the tasks of WUAs are specifically stated to include the restoration of natural water bodies, the management of water bodies to conserve the natural balance and to tend the landscape, the development of the conservation of water bodies, soil and nature (article 2 of the 1991 Law on Land and Water Organisations).

4.3 Water legislation

Looking ahead to likely developments in water legislation a greater concern with the ecological aspects of flow and the importance of minimum flow requirements is one development that may be anticipated.

Again increased pressure on water resources is likely to see more emphasis on the re-allocation of water from the irrigation sector to other use sectors especially drinking water supply. This may be achieved on the basis of river basin planning or, alternatively, through the introduction of transferable (tradable) water rights.

At the same time there is also likely to be an increased focus on water pollution and the protection of water quality. In the European Union, for example, water quality is a key focus of water legislation. With strengthening economies we can probably expect to see increased focus on water quality issues in the region as a result of increased industrial activity, growing cities and as considered in the next paragraph increased use of agricultural inputs. As the possibility of identifying new water sources decreases it becomes more important to protect those that are already available. From the perspective of agriculture the pollution of surface waters has potentially negative impacts for the irrigation sector. In other words the irrigation sector may have strong grounds to seek a tightening up of point source pollution.

Conversely agriculture itself is a major source of diffuse (non-point source) pollution. Livestock rearing operations as well as pesticides and (particularly nitrate) fertilizers can have major negative impacts on water quality. Increasing profitability in the agricultural sectors may see a rise in the use of pesticides and/or fertilizers. Diffuse source pollution is in general terms harder to address than the point source pollution. We may see a role for WUAs in formulating and implementing land use regulations, as to the application of fertilizer for example, to seek to reduce the impacts of diffuse pollution.

4.4 Irrigation legislation

A key issue that may arise under the third generation of reforms is the role and future of irrigation agencies. Where Federations are successfully established it may be possible for them to take over relatively major items of infrastructure, thereby severely restricting the need for the continued existence of the irrigation agencies.

In circumstances where the relevant agency also supplies water to other sectors an alternative may be to reform the agency through the creation of a new entity in which water users are represented, partially or entirely, on the management board. This has already happened in FYR Macedonia where the relevant agencies also supply drinking
water and water for industrial use. The irrigation agencies were re-established as new type of legal entity with each user sector (irrigation, drinking water and industrial water) represented on the management board.

The next stage of reforms to irrigation sector legislation may also see greater emphasis placed on dam safety in connection with those cases where major items of infrastructure have been transferred to WUAs or Federations. Dams fail for a variety of reasons including ‘over-topping’ (which is most commonly due to blocked or inadequate spillways or spillway channels), slips on the up or downstream faces and damage caused by wave erosion to the mitres or the upstream face. The relative danger of a dam is, however, assessed not only by reference to the probability that it will fail during a 100 year period of risk but also in terms of the human and financial costs that such a failure would cause. This is typically assessed by reference to the number of houses below a dam that would be affected by its failure.

The traditional legal mechanism that is used to promote dam safety is to impose strict or no-fault liability on the owner or operator of the dam. This approach is unlikely to be sufficient in the context of state owned dams that are used by WUAs or Federations. Many countries have introduced dam safety committees but these may have limited resources and a limited ability to intervene. What is more likely to be effective is the introduction of a mandatory system of dam safety assessments, requiring the preparation of emergency planning and the imposition of clearly defined routine tasks upon WUAs and Federations in connection with monitoring and maintenance. Such provisions will need to be set out in legislation, typically in the relevant irrigation legislation.

4.5 Environmental legislation

Apart from water pollution issues, described above, other aspects of environmental legislation that may have an impact on the irrigation sector in general and WUAs in particular are:

- an increased recognition of the ecological value of wetlands;
- increased concerns over soil quality particularly relating to erosion and salinity

Again could there be an increased role for WUAs in the region in these areas? These kinds of issue may have a very definite local impact. In other words there may be very real reasons why WUAs need to take account of the impact of irrigation on the environment as well as broader environmental impacts on (irrigated) agriculture. Farmers have always had a close link to their land. It may well be that WUAs can play an important role in supporting that link at the local level. In short there is no real reason why not. The example of Germany has already been cited. In the UK too, WUAs are playing an increasingly important role as guardians of the rural countryside.

5 CONCLUSION
As intimated at the outset of this paper while legislation has an important role in the development of the WUA sector it is but one of the factors that govern the success or otherwise of individual WUAs. Law, legislation cannot guarantee the success of reforms. Conversely though if the legislation is not appropriate it can certainly hinder or even thwart them.

At the same time law is one of the main means whereby state policy can be expressed. It is an important tool. Consequently it is important to periodically review and assess the adequacy and appropriateness of the legal framework for the WUA sector and, as necessary, to promote the necessary reforms.

Law is not cast in stone. It is a social tool that must be used to achieve the objectives of society. As such the legal framework for WUA establishment and operation must be seen as part of a dynamic, ongoing process that contributes to sustainable development.