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PUBLIC-PRIVATE PARTNERSHIPS IN IRRIGATION AND WATER RESOURCES MANAGEMENT: A PRELIMINARY NOTE

3.1. The Challenge

MNA countries need to raise financing for annual investments in the irrigation sector between 2.5 and 3.5 billion US$ in the coming years. Government budgets will possibly be the main source of funding. But as government budgets might not be adequate, MNA countries have the option of using Public-Private Partnership (PPP) to attract additional financing. However, the only PPP options that offer financing as part of its contractual services are concession or BOT-concessions. Therefore the real challenge for the average MNA country will be to ensure a good return on irrigation projects so the private sector can commit equity and loans from commercial banks to finance irrigation projects. At the same time, available water in MNA must be managed effectively given overall water scarcity and competing claims for water. PPP can also contribute to improved management and distribution of water through irrigation networks.

To meet the challenge of financing and management, MNA governments might need to consolidate their reforms to establish an enabling environment for PPP management. Minimum features of a good enabling environment are as follows:

- **Investment and business climate and perception of risks.** These are determined by a series of factors such as rate of exchange policies, macroeconomic stability, sound investments and profit repatriation, and the respect to due process in the solution of conflicts at the judiciary. If the judiciary is too slow or not predictable, conflict resolution mechanisms can be part of concession contracts to mitigate perception of risks;

- **Political commitment to expedite the formation of PPP.** Political commitment at the highest level can be shown by hierarchy of legal instruments to put in practice a PPP contract. Committed governments use contractual instruments endorsed by law. For example, infrastructure concessions are awarded by supreme decree in Chile, with signatures of the President and Finance and Sector Ministers;

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1 This section is based on the presentation of a preliminary draft Framework Paper, “Options and Challenges for PPP in Irrigation”, Murcia-Spain, 2002, prepared by Sixto Requena (Consultant) and Hassan Lamrani.
Public-Private Partnerships in Irrigation and Water Resources Management

- **Clear rules for tariff making based on sound economic and financial principles.** Rules for tariff making and adjustments should be embodied in specific laws or equivalent legal instruments, and form the basis to prepare financial projections, upon which the private sector can make qualified assessments about the convenience or inconvenience of going into a PPP;

- **Well defined WRM institutional framework** Clearly defined institutional responsibilities in WRM and well qualified staff in key positions will reduce the perception of risk by the private sector, as public functions related to the irrigation sector will be clear;

- **Sound database.** Available technical studies will allow the private sector to make all estimations needed, especially those that have financial implications and affect the profitability of the business. Therefore the more trustworthy the data, the less room for uncertainty and the more willing the private sector will be to get into PPP; and,

- **Clear risk sharing schemes between the public and private sectors.** Clear distribution of risks and instruments to overcome contingencies make a contract easier to agree on, given that costs and benefits of taking the risks can be incorporated in the financial analysis. In the case of irrigation projects, commercial risk will be given greater consideration given that willingness to pay by farmers can be affected by availability of water, which might be a very uncertain event.

3.2 Options and Challenges for PPP in Irrigation in the MNA Region

There are various optional contractual forms of Public-Private-Partnerships (PPP) that might be applicable to the irrigation sector. Options can be tailored for satisfying very specific irrigation needs, e.g., if there is in place a newly built irrigation system, the government might be willing to contract out management services from the private sector to ensure proper O&M and service reliability to farmers over the life of the irrigation facilities. If such a system did not exist and, due to fiscal constraints, the government could not build it in the coming years, then a PPP contract can help in addressing the investment problem. The private sector could bring financing, technical and managerial expertise to build and manage the system over a number of years, long enough to recover investment costs plus a reasonable return. (See Box 3.1 for the case in the concession Embalse Illapel in Chile). However, for PPP to work to the advantage of the concerned country, it will always be very important to ensure that social and environmental issues are taken into account.

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2 It is widely known that without proper O&M irrigation facilities deteriorate quickly, resulting in unreliable irrigation water and in frustration for the farmers.
The options. Figure 3.1 presents a menu of eight (8) PPP contract options (horizontal axis) and six potential features or bundles of services (vertical axis, left hand side) that can or cannot be included in each optional PPP contract. Features or services offered by each optional contract are presented as separable blocks of obligations in relation to handling infrastructure for irrigation. On the right hand side of Figure 3.1, the level of risks taken by the private sector in each optional PPP contract is indicated.

An idea of main features contained in each optional PPP contract can be grasped by looking at Figure 3.1; and the degrees of contract sophistication and risk taking by the private sector will depend on whether an optional PPP contract offers the possibility of improving financial surplus generation out of operations and whether or not an optional PPP contract offers the possibility of bringing cash financing up front.

According to Figure 3.1, (i) WUA only offers improvements in operational efficiency; (ii) contract service offers only technical expertise; (iii) management contract offers improvements in operational efficiency, technical and managerial expertise; (iv) shadow toll contracts offer surplus generation out of operations in addition to all features offered by management contracts; (v) lease contracts offer similar services as shadow toll contracts; (vi) BOT contracts offer short term financing to facilitate construction in addition to surplus generation;
(vii) BOT Concessions offer long term financing that is applied to construction of new water for irrigation infrastructure; and, (viii) Concession contracts also offer fresh long term financing to rehabilitate existing infrastructure. And, depending on the financial engineering embodied in the contract, BOT-concessions can also offer financing for the government subsidy obligations, making it possible to build irrigation infrastructure in the immediate future rather than 7-10 years later.

According to sound integrated Water Resources Management (WRM) experience, whether we look at the Spanish hydrographic management case, the French Water Agencies case, or the Dutch Water Boards case, one lesson is very clear: decentralized “corporate like” principles can be applied for implementing WRM functions. Using these principles, interests of various relevant stakeholders can be represented and independent professional management of day-to-day WRM activities with full financial and administrative autonomy can be achieved. Once decentralized, and financial and administrative autonomy for WRM is achieved, authorities in charge can work with a budget financed by water taxes, out of which they can direct grants to various stakeholders to promote proper handling of water aimed at implementing: (i) on farm water saving techniques; (ii) improved dam and distribution systems O&M, through choosing the best contractual instrument; (iii) improved domestic and industrial sewage treatment; and (iv) assess benefits and costs of PPP contracts and support them when they are found to be the best instrument to improve WRM objectives.

### 3.3 Pilot Projects

The pilot projects for private sector participation in the Guerdane irrigation district and the Gharb region in Morocco are a case in point. As part of its program of economic reforms, the Government of Morocco has decided to implement two projects for rural water conveyance and distribution through PPPs:

- The Guerdane Project in the Guerdane perimeter, near Agadir; and
- The Gharb Project in the Central Zone of the Gharb region, near Kenitra.

The Guerdane project will serve a population of market-oriented farmers in a perimeter of 10,000 hectares. It is now at the stage of pre-qualification of interested investors. Opening of biddings is expected to take place in January 2003. The Gharb Project will be tendered at a later stage.

The Guerdane project, for which total investments are estimated at US$80 million, has two main components:

- Construction and operation of a 70 kilometer-long, gravity-based (buried pipes) water conduction infrastructure that will convey an annual volume of 45 million cubic meters from the Chakoukane-Aoulouz complex to the Guerdane perimeter; and
- Construction and operation of an estimated 300 kilometer-long irrigation network that will distribute irrigation water to farmers within the Guerdane perimeter who express their demand. Distribution of irrigation water through the distribution network up to farmers’ individual storage basins will not use electric power.

Designing the appropriate tariff structure is a key aspect of the PPP activity to ensure the financial viability of the project for prospective investors, and to induce farmers on the perimeter to use surface water efficiently. It will also be used to finance a process of further technical innovation to save water by the farmer community so the critical limited resource such as surface water is used diligently, and waste is prevented.

### 3.4 Conclusion

In the context of the need for additional financing and improved management, the experience to date in MNA countries is more with water user associations than with private
commercial sector participation in irrigation. User associations have largely participated in irrigation O&M and improved management of water services. A clear choice for MNA countries, therefore, is to clearly identify the potential roles of the private sector in water management and development, together with risks and incentives.

Analysis of PPP options must address concerns about the social and environmental impacts. Questions to address include: (i) Does PPP improve service delivery to small holders and tail enders? (ii) Does PPP for market-oriented agriculture permit the government to focus on public good services to the poor? (iii) Will tariff increases be politically acceptable? and (iv) Will environmental conditions worsen under PPP?