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FINAL DRAFT REPORT

**Assessment for Enhanced Credit Authority Funding
For Implementing the
Tétouan Sewerage Treatment Project**

Submitted to

United States Agency for International Development

Submitted by

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List of Acronyms

ANA	National Sanitation Agency
BEI	European Investment Bank
BOD	biological oxygen demand
CFD	French Development Assistance
CUT	Urban Commune of Tétouan
DEA	Direction of Water Sanitation
DGCL	General Direction of Local Government
ECA	Enhanced Credit Authority
FEC	Municipal Development Fund
GOM	Government of Morocco
OCTAS	Greater Tétouan Sanitation Agency
ONEP	National Water Production Agency
PDU	Urban Development Project
PPE	païment de premier établissement (betterment tax)
SDAL	Sewage Master Plan for Greater Tétouan
TEST	Tétouan Sewage Treatment Project
VAT	value added tax

Executive Summary

Historic medinas provide evidence of a very long history of urban development and the use of water-borne sewage systems in Morocco. Until very recently, however, there was little thought given to what should be done with the sewage once it had reached the end of the pipe. In most cases, it was simply dumped into the nearest stream or river. As a result, there are currently only a very few treatment plants in the country. Because combined waste and storm water sewers have been the norm, responsibility for their development and maintenance (as well for roads that are installed at the same time) has belonged to the municipality or commune. Now that Morocco is beginning to recognize the need for the treatment of this sewage and to install the necessary (and costly) sewage treatment facilities, local authorities are finding themselves increasingly unable to bear the financial burden of this responsibility. Efforts are currently being made at all levels of government to develop a financially sustainable approach and an effective institutional framework to address this situation.

Technical Considerations

A review of all the technical documents and discussions with local technicians and officials in Morocco has shown that the proposed Enhanced Credit Authority (ECA)-funded project is indeed technically feasible. Three things need to be confirmed, however, before more detailed work on the project can proceed.

- First, the proposed siting of the sewage treatment facility needs to be reviewed and confirmed in light of the fact that the most logical option would be to treat sewage coming from both Tétouan and Martil using the same facility.
- Second, the currently proposed two-phased construction of the treatment plant would result in only a marginal improvement in the BOD at the end of the first phase. A greater positive impact would be achieved by completing all of the treatment plant in the first phase and delaying the construction of any new networks until the second. This revised approach may have consequences on the ability to recover costs. A decision needs to be made in this regard.
- Third, the question of using a system of oxidation ponds as opposed to a mechanical approach (e.g., activated sludge) needs to be restudied. Oxidation ponds require a large surface area and continual maintenance. Because of this, it may be advantageous in the long run to adopt a more conventional, mechanical approach.

Institutional Considerations

Institutional arrangements for the treatment of sewage in Morocco are now in a state of transition at both the national and local levels. At the national level, actions have been taken to transform the Direction of Water and Sanitation (DEA) in the Ministry of Interior into a National Sanitation Agency that would have an overview on sanitation conditions throughout the country and a particular mandate to help smaller and medium-sized communes identify and finance solutions to their sewage problems. Although the Communal Charter of 1976 makes the local communes directly responsible for the investment and operation of sewage works within their respective jurisdictions, the World Bank, supported by other international

donors, has been encouraging the Moroccan Government to transfer this responsibility to the Regies, or regional utility companies. Most of these agencies have already proven that they can handle the supply of water and electricity in a sustainable manner.

Institutional Recommendations for Tétouan

There is growing conviction among local officials in the Tétouan area that sewage problems must be addressed on a regional basis. This area would include not only the City of Tétouan (which recently completed a USAID-funded Sewage Master Plan), but also those of Martil, Fndiq, and Mdiq. Actions are now being taken to create a "syndicate" of local officials from the area that would be able to represent the combined interests of the four cities, commission various sewage-related studies, and interface with the Regie. This is a very positive development that needs to be supported.

The World Bank-sponsored approach, which makes use of the Regie for sewage services, appears to be the logical choice for many cities in Morocco. One of the problems in Tétouan, however, is that there is a considerable lack of trust and confidence between the Regie and the local authorities. Local government officials would rather establish a separate entity to deal with sewage that could also involve private sector participation. The problem is that the establishment and operationalization of this new agency would take a considerable amount of time to achieve. The following alternative recommendations are made to address this situation and to achieve close to the same result.

- First, the syndicate of local authorities (which is already in the process of becoming a reality) should become the basic decision-making body for sewage activities in the region. This syndicate should interact very closely with the Regie in the analysis, planning, and programming of sewage related activities.
- Second, a completely separate department within the Regie should be established to handle matters specifically related to sewage. Cooperation between the syndicate and the Regie in setting up this new department would provide an opportunity for the improvement of overall relations between these two groups.
- Third, the possibility of converting the above-mentioned department into an independent sewage Regie should be investigated at a later date, once the department has gained a sufficient amount of experience and confidence.

Technical Assistance

Specific technical assistance will be required in:

- helping organize the emerging regional syndicate (or steering committee) and helping develop a strategic sewage plan for the overall region;
- setting up and training staff for the new sewage department in the Regie;
- establishing viable and reliable systems for the new department; and
- auditing the department or agency on an annual basis to evaluate cost-recovery rates, business practices, and the quality of services provided.

1 Background

1.1 Enhanced Credit Authority

The Enhanced Credit Authority (ECA) is a proposed USAID loan guaranty program that will supply market-rate loans to a potentially wide variety of borrowers in developing countries throughout the world. Draft legislation for the ECA is currently being considered by the United States Congress. In response to a request for proposals for viable ECA projects, USAID Morocco submitted the Sewage Master Plan for Greater Tétouan (SDAL). The execution of this Master Plan was funded by USAID and carried out between 1992 and 1994. The Master Plan formed the basis for the development of a detailed project description concerning the implementation of the proposed ECA-financed activity called the Tétouan Sewage Treatment Project (TEST).

In anticipation of congressionally approved funding of the ECA in October of 1995, this mission was carried out in June of 1995 to evaluate project development, technical, and institutional concerns related to the use of this credit facility for TEST and, if appropriate, to make recommendations concerning necessary Conditions Precedent that would allow for ECA utilization.

1.2 Tétouan

Tétouan is a medium-sized city located about six miles from the Mediterranean Sea on the northern coast of Morocco. Like many Moroccan cities, Tétouan has experienced rapid, urban growth in recent years, which has created numerous problems. Tétouan has grown from a population of 101,000 in 1960 to nearly 300,000 today. Rapid population expansion without a commensurate increase in the provision of municipal services has exacerbated what was already a deteriorating sanitary environment within and around the city. In particular, the lack of development in the removal and treatment of sewage presents a substantial health threat. Bacteriological analyses done on more than 900 wells in Tétouan over the past 10 years show that 52 percent of the wells sampled are polluted. Samples taken at the beach in the town of Martil, just four miles away, also contain excessive levels of bacterial pollution.

The regular and growing presence of raw sewage also threatens economic development. The coastal area near Tétouan, including Fndiq, Mdiq, and Martil has substantial potential for tourist development. While some development has occurred, local authorities in Martil, for example, report that they observed a marked slowdown in investment when the sewerage problem was at its worst. The threat to potential revenues generated by the tourist industry has taken on a new urgency given the recent slowdown in the local economy.

Very little investment has been made in the sewage sector to extend or rehabilitate the existing system since independence. Maintenance is performed only when absolutely necessary and even then only with the view of achieving immediate results. With limited resources and technical capacity, curative rather than preventative measures remain the rule and these

are generally not sufficient to combat the continual degradation of the hygienic conditions in the city and its surrounding region.

The lack of investment in the sewage sector is due primarily to insufficient resources. For the moment, there are a very limited number of ways through which municipalities can generate revenue specifically for sewage related activities. While communes receive 30 percent of the value added tax (VAT), this revenue must be used for all local government activities (e.g., road repair, maintenance and extension, street sweeping, trash collection and disposal, administrative costs, etc.).

There are essentially only two ways to generate revenue for sewage activities. The first is the betterment tax or PPE (paiment de prémier établissement [betterment tax]), which requires owners of newly constructed buildings to pay a one-time fee based either on the area of their property or on the length of it that abuts a public road. The second is the property tax. Revenue from the latter is split among liquid waste, solid waste, street sweeping, etc. The formula for the division of this revenue is unclear and often inconsistent. Even if the rates of collection of these two taxes were extremely high, which they are not, the revenue generated would still fall far short of what is needed for operation and maintenance of the sewage network alone. Taking into consideration the substantial extension and rehabilitation called for in the SDAL, very high user fees would have to be levied upon consumers to recover both new development costs and those for the operation and maintenance of the system.

In 1994, the Government of Morocco (GOM) passed a law allowing local communities to levy monthly sewage charges on consumers if they could show that the service was running a deficit. A budgetary deficit is a fact of life for virtually every agency in the country involved in sewage sector activities. Only a very few have the necessary analytical accounting systems in place that would permit a precise attribution of losses to a specific activity. As a result, this authority to charge a fee based on consumption has not yet been instituted in a single area. Even if local communities had the accounting rigor to demonstrate such a deficit, recourse to this mechanism would still be extremely limited since it can only be done in the case of a budgetary deficit.

1.3 The Greater Tétouan Sewerage Master Plan

Recognizing the size and importance of current sanitary problems as well as the need for additional investment in the sewage sector, USAID helped finance the Sewage Master Plan for Greater Tétouan (SDAL). The necessary work outlined in the SDAL includes: the rehabilitation of the existing network, including replacement of collectors, secondary pipes, manholes, inlets, and rainwater drains; the extension of the existing network to unserved and underserved neighborhoods; and the construction of a lagoon-type wastewater treatment plant. The total estimated cost of the specified work in 1994 was \$50 million.

The SDAL calls for the creation of the Greater Tétouan Sanitation Agency (OCTAS) to oversee new development and to carry out operation and maintenance. Under this scenario, the OCTAS would be an autonomous agency with the required independence to establish the

tariffs and cost-recovery mechanisms necessary to sustain operation and maintenance and to recover debt service costs. The agency would be responsible for all aspects of sewerage the city except for the collection of sewage service charges. Because of the obvious need to associate sewage fees with the amount of water consumed, these fees would be collected by the regional utility company or "Regie." The threat of having water service discontinued can be a powerful tool to enforce payment for sewage services, which many citizens feel should in fact be free.

2 The Sewage Sector in Morocco

2.1 Sector Development

Though the Government of Morocco has been involved in the sewage sector since the 1980s, this participation has been limited and occurred mainly in larger urban agglomerations. Investment in sewage collection and treatment systems has lagged far behind investment in potable water. While improvement in the availability and quality of potable water has occurred rapidly under the effective management of the National Water Production Agency (ONEP), no such GOM agency has been created to deal with sewage. As a result, the limited work that has been executed has generally been of a poor standard and has not kept pace with industrial and urban growth. With only one or two wastewater treatment plants operating in the entire country, untreated sewage is a major problem of national proportions. The lack of effective collection and treatment poses an increasingly serious problem to public health, the environment, and the economy.

There has been wide recognition in Morocco that problems caused by the inadequate collection and treatment of sewage must be addressed. Sewage master plans have now been initiated or completed in 13 cities (being supervised by the Regies or municipalities) and in 137 towns (overseen by ONEP) using financial and technical assistance from the World Bank, USAID, and other agencies. The USAID-financed Tétouan Sewage Master Plan was one such study. Despite the broad scale and increasingly necessary work to be done in the sector, the GOM still does not provide any subsidies to local governments to help them resolve the problem.

Local communities have the right and the authority to select the method by which they will carry out sewage sector activities. The "Charte Communale," instituted in 1976, places the responsibility for sewage services with the municipalities ("Collectivités Locales"). While Regies maintain responsibility for potable water in 16 of the largest urban areas and electricity in 10, the situation with liquid waste is quite different. There are several reasons for this.

First, because the GOM refuses to financially participate in the development of sewage systems, municipalities have long been entirely responsible for investment. The rationale for delegating responsibility for sewage collection and treatment to local communities is that the activity is of a local character and can best be carried out by those whom it concerns. Another reason for devolving responsibility for sewage to the local level is that the GOM

does not have the national level resources to contribute to the sector. Finally, the GOM's current orientation toward decentralization of authority and responsibility has led some central and local government officials to believe that ceding authority of sewage activities to a Regie or to a GOM agency would be tantamount to losing political control over these activities.

Local technical staff responsible for maintenance are often untrained and lack the necessary physical means to execute their work effectively. The inadequacy of equipment and resources in some cases is so severe that technical departments often limit their activities to simply patching up damaged works or unclogging the network to alleviate only the most urgent crises.

2.2 Financial Resources

Domestic Funding

Since independence, the GOM has not considered sewage collection and treatment a priority. As mentioned above, there are no central government subsidies for the development of wastewater collection or treatment works in Morocco. While loans are available from the Municipal Development Fund (FEC), the maximum term for these loans is 15 years and the interest rate is substantially burdened. The FEC has the right to add up to 2.5 percent of interest for its services onto the rate of its money supply. The already enormous burden of investment in wastewater collection and treatment therefore becomes even more difficult for local communities under these conditions. It is not uncommon for the interest rates for local governments to reach 14 percent. While the FEC allocated \$86 million or about 16 percent of its funding for activities in the sewage sector in the 1988-1993 period, the level of investment required and the rate at which money is available clearly excludes most Moroccan cities from using these funds to address their increasingly difficult sewage situation in any serious manner.

International Funding

Given the very limited availability of GOM funds or subsidies for the development and/or improvement of sewage collection and treatment works in Morocco, funding from bilateral and multilateral agencies would seem to be a logical alternative. However, international funding must pass through the Ministry of Finance, which, without exception, adds a margin for exchange risk (of 4-6 percent). The money is then transferred to the FEC, which, as already mentioned, adds an additional fee of up to 2.5 percent before its on-lent to the ultimate borrower. At the same time, the maturity of these loans is kept to a maximum of 15 years. These terms make it very difficult for local communities to support debt on large infrastructure investments even when international funds do become available.

In the course of appraising the feasibility of the \$136.8 million Second Sewerage and Water Re-use Project for the rehabilitation and development of sewage collection and treatment works in Casablanca, Fez, and Marrakesh, the World Bank has set out several conditions that must be met before the conclusion of project negotiations and the execution of the loan. Perhaps first in importance among these conditions is the requirement that the municipalities

cede authority for sewage collection and treatment to the respective Regies. Because the Regies are autonomous agencies, they would have the right to raise service fees to the levels required to cover both debt service and operations/maintenance. The World Bank is seeking specific commitments from the GOM to amend the legislative framework to provide the Regies with genuine autonomy to: increase fees when necessary; independently manage personnel; institute viable terms for the settlement of arrears; and allow more independent procurement. With these improvements in place, the Bank would execute its loan to the Ministry of Finance, which would then on-lend an equivalent amount of local currency to the three Regies under the same conditions: 20-year term, market interest rate with five years of grace. The loan would be guaranteed by the GOM, but the Regies would take responsibility for the exchange risk. By implementing the conditions stipulated in the *protocoles d'accord*, the World Bank seeks to enhance the independence and capacity of the Regies to be accountable for the management of their respective loans. This would result in more rationalized management and decision-making, an increase in the term of the loan by 5 years, and a substantial reduction in the cost of borrowing money by avoiding the burden of the Treasury's fee for exchange risk and the FEC's administrative fee.

The World Bank solicited and received the cooperation of other donors as it was developing the *protocoles d'accord*. Several other donors are currently waiting for the outcome of negotiations on the Second Sewerage and Water Re-use project before they commit funds for other projects. The French Development Assistance (CFD) will be co-financing the project with the Bank, eventually providing \$18.9 million. The European Investment Bank (BEI) has funding available at rates 3 percent below market interest rates. The Spanish Development Agency is also reported to be looking for projects, but is waiting to evaluate the outcome of the Bank's negotiations. The German development agency, GTZ, provides concessional financing for innovative sewage treatment works, although the terms of these funds limit widespread applicability. There is about \$7.5 million remaining on USAID's first Moroccan Housing Guaranty Loan (HG-001) that could be used for the development of sewerage works in Tétouan. While financial resources appear to be available for investment in the sewage sector, there is not an adequate institutional structure in place that can effectively promote and sustain this type of development.

2.3 Financing Recommendations

Subsidies

While the GOM's current policies of decentralization and reduction of state subsidies are laudable goals, there are several significant reasons why the national level government may still have to play a strong role in the sewage sector. First, the harmful environmental, economic, and water resource impacts of inadequate sewage treatment are national concerns and should be treated as such. Municipalities seeking to solve their own sewerage problems cannot be held accountable for the protection of natural and hydraulic resources that extend beyond their administrative boundaries. The failure to collect and/or adequately treat sewage has negative consequences on human health, environment, and water resources for an entire region, if not for the country as a whole. Second, the development of wastewater collection and treatment works is extremely expensive and it remains to be seen whether affordable user

fees alone will be sufficient to cover both the costs of construction and the costs of operation and maintenance. One solution to both of these problems would be the creation of a national pollution fund to help local communities to pay for investment in wastewater treatment facilities. After assistance with the initial capital investment, local communities would develop the necessary fee structures to cover all network construction, extension, and rehabilitation costs, as well as those for operation and maintenance. In the absence of concessional financing, blended financing (with some market-rate and some concessional), or a national policy to assist local communities in meeting initial capital investment costs, it is difficult to imagine an appreciable nationwide improvement in Moroccan sanitation conditions.

Donor Coordination

Two things stand out in investigating the various financial and institutional relationships that currently characterize national policies for the sewage sector. First, there is no well defined policy that realistically addresses the challenge of developing an effective response to the increasingly inadequate sanitation conditions throughout the country. Second, this policy vacuum and the *ad hoc* coordination among donors encourages Moroccan agencies to play donors against each other to obtain marginally better financial terms on international loans. This bargaining process is very time-consuming and can become counterproductive in light of the magnitude of the sewage treatment problem. While the Moroccans should seek to take advantage of the best financial terms that can be obtained, spending a great deal of time and effort in bargaining for the best conditions on international funding should not serve as a substitute for sound government policies to effectively address the overall situation. Policy and institutional change will be required to create an enduring technical and managerial capacity in the sewage sector throughout the country and the continual search for one-off concessional financing will not be able to sustain a solution. The GOM must make sewage a priority, recognize the need to invest in the sector, and put the necessary volume of resources in place to generate widespread development. Implementing the recommendations set forth in the World Bank's *protocoles d'accord*, which accompany the Second Sanitation and Water Re-Use Project, would be a good start to building a new approach to the sector. The efforts made by the World Bank to gain the support of other donors for this project should be reinforced. This way international funding would more effectively promote specific policy and institutional changes that would extend beyond the impact of a particular project financed by a given donor.

3 Institutional Considerations

3.1 Sewage Sector in Morocco: The Institutional Context

The Communal Charter of 1976 gave responsibility for the management, planning, and financing of all urban infrastructure to the local communities. The Charter intended to reinforce the roles and responsibilities of the communes by decentralizing municipal affairs. It also placed the sewage sector completely under their authority.

The Ministry of Interior, as the supervising agency for local communities, provides them with assistance through the General Direction of Local Government (DGCL) and the Direction of Water and Sanitation (DEA). This assistance is generally limited to helping communes develop and implement sewage studies (e.g., conception of collectors and treatment works, etc.), monitor ongoing research and experience in the field of sanitation, train staff, and identify and pursue external financing opportunities. The last function also makes the DEA the technical counterpart for international donors. Three other directorates within the DGCL assist the communes in the area of sewage treatment: the Direction of Local Financing, which is responsible for redistributing revenues obtained through the VAT; the Direction of Planning and Equipment, which is responsible for investment planning for sewage; and the Direction of Public Utilities, which is the supervising agency for the local utility companies or Regies.

Actions are now being taken to transform the DEA into a National Sanitation Agency (ANA) whose primary role would be to help smaller and medium-sized communes identify appropriate solutions to their sewage problems and obtain the necessary financing to resolve these problems. This new agency will be placed under the tutelle of the Ministry of Interior. The Ministry of the Environment, a recent creation, is also destined to play an important role in the sector, though it is as yet undefined. The National Laboratory for the Study and Surveillance of Pollution and Nuisances coordinates the activities of various laboratories, standardizes analysis methods, proposes standards, monitors pollution throughout the country, carries out studies for sensitive areas, and is developing a database on the status of pollution throughout the country. Finally, at the national level, an interministerial commission for sewage treatment has been given the responsibility to review and approve sanitation studies.

Despite this array of GOM agencies involved in the sewage sector, local governments continue to be responsible for the investment and operation of sewerage works within their respective jurisdictions. As stated above, the amount of revenue that these local communities can generate for these activities is extremely limited. Most often these resources are not enough to support even operation and maintenance, much less any investment in the rehabilitation or extension of the network and/or sewage treatment facilities.

Given very limited financial resources, the lack of technical capacity in the sector, and the overall dimension of the sewage problem, several communes have transferred sewage network responsibilities to the Regies. Under these conditions, the Regies' responsibilities include operation and maintenance, rehabilitation, extension, and construction of new works. Cities that have chosen to transfer sewerage responsibility to the Regies include Casablanca (1987), Agadir (1991), a neighborhood in Sale, and, most recently, Fez. Marrakesh is likely to follow suit in the near future. The communes of Martil, Fndiq, and Mdiq have entrusted the local Regie with only new development, while others, such as Rabat, have charged the Regie only with the supervision of master plan development.

With the help of international donors such as KFW and GTZ (two German development agencies), ONEP has undertaken a large program for the development of sewage master plans for small and medium-sized communes to which it provides piped water. ONEP is now in the process of signing an agreement with the communes of Khenifra and Mrirt to implement a large program of sewage treatment, 70 percent of which will be financed by a grant from KFW.

3.2 Institutional Orientations

Though the Communal Charter of 1976 permits each commune to independently determine the entity responsible for sewage, a political declaration by the Minister of State for the Interior in 1987 invited the communes to develop their sewage services by signing a contract with the respective Regies to undertake and manage these services. The declaration also called for the implementation of sustainable financing mechanisms for sector activities through the application of a sewage fee and the betterment tax or PPE.

At the same time, the elaboration of a National Sewage Master Plan was awarded to a consulting group. The National Sewage Master Plan will include an evaluation of the current situation, a detailed quantification of needs for the coming 10 years, and a more general idea of the needs for the 10 years that follow. The recommendations should include an overall institutional framework for the sewage sector at the national level. This study is still in its initial phase and no institutional recommendations have yet been made.

3.3 Donors' Institutional Recommendations

The institutional arrangements proposed in the World Bank's Second Sewerage and Water Re-use Project for Casablanca, Fez, and Marrekesh are consistent with the basic principals of the Communal Charter of 1976, as well as with a letter concerning a sector strategy that was addressed to the Bank by the Moroccan Government on November 2, 1994. The institutional arrangements proposed by the Bank can be summarized as follows:

- for the large-sized cities, the municipalities will transfer responsibility for sewage service to an autonomous department in the appropriate Regie that will be responsible for the planning, implementation, and management of the sewage works; and
- for the small and medium-sized cities, to which the ONEP provides or will provide potable water, the municipalities will transfer sewage treatment to an autonomous and financially viable department within each ONEP; ONEP will then ensure the planning, implementation, and management of the sewage treatment works in these centers.

In each case, the relation between the respective communes and the Regies or ONEP will be established by a contract. This contract-based approach will also allow greater private sector participation in the future. In fact, authorities in Casablanca are now examining the possibility of transferring all sector responsibilities to a private entity. Other options include public-private joint ventures (*société mixte*), independent Regies which would be responsible only for sewage, private operators, etc.

The National Sanitation Agency, now being formed, will provide assistance to the small and medium-sized communes that require technical training and/or assistance, as well as help in identifying potential sources of funds. The most important concern of any entity that becomes responsible for sewerage is ensuring that it has sufficient financial means to properly execute its mandate. While the creation of a new sewage entity will facilitate the communication of financial and technical information, it will not address the problem of insufficient resources for capital investments.

3.4 Greater Tétouan

Sewage treatment in Tétouan is currently the responsibility of the Urban Commune of Tétouan (Greater Tétouan). The commune is responsible for executing studies, constructing new works, and operation and maintenance. The individual communes that make up the urban community, El Azhar and Sidi El Mendri, are responsible only for the provision of new connections.

Recent financial support from USAID has helped Greater Tétouan develop a Master Sewage Plan and obtain essential network cleaning equipment (e.g., two hydrojet water guns, one of which has already been delivered and the other is being procured), pipe inspection equipment (including a television inspection camera), laboratory and personal security equipment, and personal computers.

The sewage service currently provided by the Urban Commune of Tétouan (CUT), however, is insufficient to ensure the required level of service. The financial revenues available to the Commune do not even permit its Sewerage Department to perform operation and maintenance duties to acceptable standards.

3.5 The Communes of Martil, Mdiq, and Fndiq

The commune of Martil has signed an agreement with the Regie of Tétouan to carry out studies and implement a sewage network and treatment station for the city. This agreement was signed for a total cost of 55 million DH. The revenue for this plan was to come entirely from the collection of the betterment tax. Following the implementation of just a small part of the sewage network, the utility company realized that it would not be able to recover its expenses using this approach. Consequently it has now stopped all work.

This situation has led to a crisis of confidence between the commune and the Regie. Even though the Regie is not responsible for operation and maintenance in the sector, the work is currently incomplete and the commune cannot officially take over the network until it is finished. Until then, the Regie will continue to manage the system as best it can, performing only those operations it can afford with the revenue it receives through the betterment tax. Despite this stoppage, officials of Martil have indicated a basic level of satisfaction with the work done by the Regie. On a technical level, however, it is clear that this work was not developed on the basis of a city-wide sewage plan, but rather was carried out in a piecemeal fashion without significant input from technicians who have expertise in the sector.

The cities of Mdiq and Fndiq have also turned over their sewage treatment efforts to the Regie but very little has been done in these communes.

3.6 Institutional Arrangements in SDAL

As a result of discussions with local Tétouan officials, SDAL recommended that an autonomous agency, OCTAS, be created for sewage collection and treatment and be placed under the control of the CUT. OCTAS would be a semi-autonomous sewage agency with an industrial and commercial character for all sector activities except billing. This would be done by the Regie. Such an arrangement would permit the association of sewage fees with the quantity of water consumed. User fees would cover the cost of operation and maintenance, while funding for the investment itself would come from the betterment tax and connection fees.

3.7 Current Institutional Trends

Local officials, as well as those in the DGCL, have become aware that sewage problems in the area surrounding Tétouan, Martil, Mdiq, and Fndiq cannot be treated in a piecemeal fashion. Tétouan and Martil, for example, continue to grow into a single continuous agglomeration, with visible distinctions between the two cities becoming more and more blurred each day. The city of Martil, with a population of 40,000, is located on the coast, slightly downstream from Tétouan. The sewage from both cities enters the sea within the boundaries of Martil. Local authorities from both Martil and Greater Tétouan have agreed that a regional sewage study covering Tétouan, Martil, Mdiq, and Fndiq is required. Addressing current and anticipated problems without a regional level study would lead to only partial solutions, which could unwittingly reduce the viability of existing and planned tourism along the Mediterranean coast. Even at this point in time, it would make sense for Tétouan and Martil to cooperate in the construction and use of a single wastewater treatment plant.

The four communities of Tétouan, Martil, Mdiq, and Fndiq have already taken the first concerted step in addressing their common sewage problems. They have agreed to form a "syndicate," or steering committee, which will first commission a regional study and then, according to current thinking, name (or create) an agency to take charge of sector operations for the region. One possibility currently being discussed concerning the nature of this new agency is that of a joint public-private sector partnership (société mixte) that would include each of the four communes, the Regie, private sector participants (including banks and other investors), and possibly ONEP. This no doubt would take a considerable amount of time to put into place and fully operationalize.

The one institutional option to which officials in Tétouan appear to be opposed is the transfer of sector responsibilities to the Regie. It is felt that the Regie, in performing its responsibilities for water and electricity in the past, did not adequately collaborate with the communes. The lack of say in setting tariffs and the lack of transparency in the Regies' billing system are primary points of contention and the sources of a serious lack of confidence. Officials opposed to charging the Regie with sewerage responsibilities have also indicated that the

agency does not separate water receipts from those for electricity, nor revenue collected in one commune from that collected in another. This has led the officials of Tétouan in particular to feel that they are subsidizing the Regies' activities in the other, smaller, less-populated communes.

The Urban Commune of Tétouan would consider the transfer of sector responsibility to the Regie only if its activities were limited to Tétouan instead of including the provinces of Chefchaouen, Tétouan, and Larache together as it does now. This may be one possible solution to the problem.

3.8 Institutional Recommendations

It is important to be sensitive to local concerns in determining the most appropriate institutional choice for sewage responsibilities in the Tétouan region. The overall perception held by local officials is that the sanitation problem in the Tétouan area needs to be addressed on a regional basis and not in an isolated manner for each of the separate municipalities. This is a significant and welcome departure from previous thinking on how the sanitation concerns in the area should be addressed. The sewage problem in the area is certainly not limited by municipal boundaries, particularly in the case of Tétouan and Martil, which are very close together. After recent discussions between leaders of the concerned communes, it seems that the creation of OCTAS, which would deal only with the sewage problems for city of Tétouan, is no longer considered to be the desired solution.

The current disposition of officials in Tétouan precludes the possibility of transferring sewage sector responsibilities to the local Regie as it is currently configured. The only way this might happen would be if the Regie in Tétouan: 1) were no longer responsible for water and electricity in the provinces of Larache and Chefchaouen as well; 2) made an effort to justify the relationship between its costs and charges; 3) allowed local leaders greater participation in determining the fee structures; and 4) created an independent and self-sustaining sewage department which benefits from overall Regie experience, but neither subsidizes nor is subsidized by Regie's other activities. Although the Regie currently has no plans to implement any of these steps, they could be opened for discussion and debate.

Considerable thought is now being given to the creation of a syndicate that will promote coordination among the various communes and promote a broad-based solution to the sanitation problems that affect them. Such an approach would have the advantage of optimizing technical and financial resources. The disadvantage, however, is that it will create yet another link in the chain of responsibility with all the possible bureaucratic delays in decision-making. While all of the participants will be able to agree about certain central issues, various technical and financial decisions will affect each commune in a different way and lead to varying degrees of resistance, opposition, and delay from those with different interests. The most effective role for this syndicate, therefore, would be to provide a forum for discussion and coordination on common sewage issues and to give the four communes greater leverage in negotiating with the Regie. The syndicate could implement its own studies and determine its own priorities, which it could be presented to the Regie for action.

After undertaking the necessary study to evaluate the most advantageous regional approach to sewage, the syndicate, according to current thinking, would delegate responsibility for sewage to a mixed partnership. The organization of this entity could be conceived in several different ways. First, the communes could together comprise the majority and therefore be the major decision-makers in a public-private partnership. However, it is difficult to imagine a private company placing its capital in an enterprise, working in a sector that is already widely believed to be unprofitable, in which it does not have control of costs or the rates it can charge to the consumers. Second, the syndicate might form a mixed partnership in which a private firm has the decision-making power. In this case, the danger is that the user's fees might be increased to levels that become unaffordable for the local population.

There is also a danger that the execution of the project will be significantly delayed by the amount of time it takes to implement this two-step process and that the funds available from various international donors might be allocated somewhere else in the interim.

4 Technical Considerations

This section briefly describes the principal technical aspects of the sewerage sector as described in the SDAL and explores the feasibility of collapsing the project into a 10-year timeframe composed of two 5-year periods. The phasing of development called for in SDAL would maximize the impact of the project, permit technical viability, and be compatible with the objectives of an eventual ECA loan.

4.1 The Sewerage Sector in Tétouan

The city of Tétouan is currently served by a combined waste and storm water sewage network that drains into the Martil River through a series of outflows located around the edge of the city adjacent to the river.

The rapid growth of the city's population, the expansion of its built-up area in virtually all directions, and the substantial increase in the consumption of potable water due to better access and supply have had a direct impact on waste water problems in the Tétouan-Martil area. A large part of the problem is due to the fact that the major components and connections in the existing sewage network have not been expanded or improved since they were originally installed.

The direct outflow of untreated waste water into the Martil River has caused very serious pollution problems along the river and the Mediterranean coastline into which it ultimately drains. Increased pollution has had a negative impact on public health, the environment, and economic development in the region.

With this in mind, the recent Sewage Treatment Master Plan for Tétouan recommended that a certain number of improvements be carried out over the next 20 years that would reduce water pollution in the area by providing the city with an effective sewage collection and treatment system.

4.2 Feasibility of 5-Year Phases, 10-Year Project

The Sewage Master Plan for Tétouan was completed in June 1994. This Master Plan was developed within the overall framework of the USAID-sponsored HG-001 Urban Development Project (PDU) and the HG-003 loan.

Rehabilitation, extension, and development of Tétouan's sewage works is divided into three periods in the SDAL. The first two phases of five years each address the city's current requirements, while the third, a 10-year period from 2005 to 2015, is primarily focused on meeting the needs of projected future growth. The most important part of the project, therefore, will occur in its first 10 years. This approach essentially conforms with USAID's desire to limit disbursements to two five-year periods. Neither a later increase in the sewage treatment plant's capacity nor the extension of the existing network will be included in the project financed by ECA.

The first phase, of primary urgency, is programmed for the 1995-2000 period. The basic aim of this phase is to establish a network system that will permit the effective collection and removal of sewage to a treatment station, the first phase of which will also be completed during this initial period of work. The SDAL calls for the partial construction of an anaerobic wastewater treatment plant during this phase that will eliminate about half of the wastewater's biological oxygen demand (BOD). Given the expanded network and increased volume of wastewater making its way to the plant, this will have only a very limited effect on the effluent being deposited into the sea. Rather than constructing the sewage treatment plant in phases, as is proposed in the SDAL, it would be better to construct the entire plant during the first phase. This will allow for the immediate mitigation of the effects of raw sewage on the Martil River, its riparian area, and the Mediterranean Sea.

The second phase of development (2000-2005) as outlined in the SDAL, consists of improving the collection network, completing the sewage treatment plant (which in the revised approach would be completed in the first phase), and acquiring the necessary equipment for effective operation and maintenance of the network and plant. Once again, depending on the outcome of discussions with the concerned authorities, a greater investment in the sewage treatment plant could occur in the first phase and more rehabilitation and extension of the network in the second. Preliminary conversations with officials in Tétouan suggest that the primary constraints to implementing this strategy are: 1) the lack of capital required to make such a change and 2) concern about being able to recover costs through higher user fees for those already connected to the network. While there is general support for the idea of completing the treatment plant in the first phase, the availability of financing under the right conditions will determine whether or not this is the best option.

As USAID has expressed interest in collapsing the project into a 10-year timeframe, it is conceivable that its own participation could be limited to the first two phases. One minor modification in the SDAL would have to be made. This would consist of rehabilitating 10 km of the sewerage network, currently programmed for the 2005-2015 period (third phase), in the second phase (2000-2005) instead. This would increase the initial cost outlays for the

project, but its execution in the second phase makes sense and would not pose any particular technical problems. Precise cost estimates of these changes would be investigated in the detailed design phase.

4.3 Comments on the SDAL

An evaluation of the costs detailed in the SDAL indicates their consistency with standard construction costs and practices. Perhaps the most important consideration, which obviously was not included in the SDAL, is the cost of upgrading and developing Martil's network and ensuring sufficient capacity in the wastewater treatment plant to serve both Greater Tétouan and Martil. These additional costs will clearly have an impact on the overall project design and financial feasibility. Some comments can also be made regarding specific details included in the master plan.

First, anaerobic sewage treatment lagoons have been selected as the most technologically appropriate and cost-effective solution to sewage treatment in Morocco. Similar experience in Tunisia, for example, has shown that this may not always be the best choice since it requires particular soil conditions, requires a large amount of space, and can generate significant maintenance problems (e.g., odors, mosquitos, etc.). Reevaluating the choice of sewage treatment technology should be done as a priority during the detailed design phase of the facility. Another concern involves the recommendation in the SDAL for chlorination to be a part of the purification process. Chlorination is no longer considered to be as reliable or cost-effective as it was in the past. Regardless of the treatment process that is selected, the use of chlorination should be carefully reconsidered and evaluated.

Second, a sum of 5 million Dirhams was set aside for the development of rainwater works for which few details were specified concerning the capacity of the network to be built or how it would empty into the Martil River. In this context, it will be necessary to include additional rainwater drainage canals to protect inhabitable areas.

Third, the execution of added complementary studies is estimated to cost about 26 million Dirhams, or about 4 percent of the total project cost. The realization of development studies concerning topography, geotechnology, etc. will certainly cost more than this and it would be well worth updating these costs to make them more accurate and to avoid any surprises in the future.

Fourth, the SDAL includes a line item that is described as "sealing" some 20 km of the network. A clear explanation of how this process will work and how its costs differ from "replacement" should be given.

Fifth, since the time the SDAL was completed, USAID has contributed funds from its Dersa-Samsa Urban Development Project for the purchase of two water jets. The acquisition cost of this equipment and other materials purchased in the interim should be deducted from the total projected cost of the project. It is also worth noting that in the SDAL summarization of project costs there is a line item for the cleaning of the network. Since the project calls for the

acquisition of material and training of personnel, regular operation and maintenance activities should not be included as a separate budgetary line item.

Finally, attention should be called to the fact that the cost of industrial wastewater treatment or pretreatment is included in the overall project cost. This figure should be removed. The cost of sewerage works and pretreatment facilities will be borne by the industries concerned and therefore should not be part of overall project cost.

With the exception of these remarks, the global project budget presented in the SDAL seems to be appropriate for the nature of the work envisaged.

5 Conclusions and Recommendations

Because the Government of Morocco has not considered sewage collection and treatment as a top priority, development within the sector has lagged far behind need. There is neither a national fund available to help local communities invest in wastewater works, nor a cohesive national policy for the development of the sector even if funds were available. As a result, local communities are left to tackle the situation as best they can. The lack of funds at affordable terms is a principal cause of the poor state of development within the sector.

The institutional framework within which sewage activities in Tétouan are currently performed is undergoing a fundamental transformation. The decision by the communities of Tétouan, Martil, Mdiq, and Fndiq to address sewage problems in a concerted manner makes inherent sense and should be considered as a very positive development. The communities' distrust of the Regie and their reluctance to raise tariffs on consumers of wastewater services, however, suggest that the financial management of any sewage activity will continue to be a problem even under any newly formed and independent sewage agency. This is one of the reasons it is important to evaluate carefully the financial feasibility of the proposed ECA. It is essential that the local (and national) authorities realize the importance and immediacy of the sewage problem they are facing. A mission identifying the economic implications of poor collection and lack of proper sewage treatment would clearly demonstrate the tangible financial damage being incurred by not investing as soon as possible. A study documenting current economic losses and potential growth accompanying investment in the sector could serve as an effective catalyst to mobilize local support and crystalize decision-making action for addressing the current situation. A brief overall analysis could be included in the financial analysis component of this phase of the ECA study to estimate the economic costs of not treating sewage on tourism in the area and to serve as an illustrative basis for discussions with GOM officials at both the local and national levels.

The current lack of decision on institutional arrangements poses a number of difficulties for the eventual application of ECA and the development of a viable project. First of all, the SDAL will need to be supplemented by a further study detailing how best to combine and integrate the sewerage activities for the overall region. Until a regional institution is actually selected or created by the concerned municipalities, the evaluation of a potential borrower for

the ECA-sponsored loan is premature. This is obviously an issue of critical importance to the success of the ECA-financed activity.

The remainder of this brief report sets forth a number of recommendations concerning the institutional arrangements that will allow the project to go forward. Eventual execution of a project using ECA, including additional works identified in the supplementary regional study, would be feasible if the institution created satisfied the basic criteria that are detailed below.

5.1 Proposed Tétouan Sewerage Regie

The most experienced and capable institution for the implementation of any regional master plan and sewage system would be the local Regie, which is now in charge of water and electricity. It already has a computerized information system, a qualified cadre of engineers, an independent character, and the legal right to raise tariffs independent of approval by local officials. It is perhaps these very attributes, however, that have created tension between the Regie and the local authorities who have expressed dissatisfaction with their lack of control over billing rates and the absence of detailed breakdowns of the Regie's billings. In certain cases, the Regie also appears to have been arbitrary and inconsistent in the pricing of its services. The status of current relations between the Regie and local officials make the selection of the Regie, as it is currently set up, very difficult for sector activities.

Although local officials are currently considering forming a public-private venture to take on sewage responsibilities within the region, it seems unlikely that any private interest would invest in such a venture unless it could be sure of realizing a return on its investment. Given the current resistance to full cost-recovery from consumers and local officials, it seems unlikely that local officials would permit user rates high enough to cover operating costs, debt service, and a return on investment. Under these conditions, it might be more realistic to form an entity similar to the one proposed in the SDAL, reorienting it to the region, rather than simply to Greater Tétouan. Once the necessary degree of confidence and experience have been reached, this agency could then be converted to a mixed partnership or to an entirely private sector operation. This process, however, could take some time to complete.

For the institution ultimately selected to be responsible for sewage activities in the region, it must be able to: perform operation, maintenance, rehabilitation, and extension work; set fees sufficient to cover costs without undue controls by local officials or the Ministry of Interior; maintain clear and transparent accounts and billing procedures; collect arrears from government institutions; and select professional employees according to agency needs.

Given these requirements, an autonomous regional authority should ultimately be established that has an independent administration and a legal mandate to set tariffs and fees at the levels necessary to cover debt service payments and the operation and maintenance charges. The process by which fees are set is perhaps the most important element in determining the financial viability of the ECA project. If local officials resist the notion of full cost recovery, then any agency responsible for providing sewage facilities would be squeezed by increasing

costs and responsibilities on the one hand, and its inability to generate increased revenues on the other.

Establishing the Tétouan Sewage Regie as an independent agency with the legal right to set tariffs in relation to costs would seem to be the only way to ensure the long-term feasibility of the sewage sector improvement in the area.

It will also be necessary to create the mechanisms to support the participation of the local communities in the development planning, programming, and rate-setting for the sewage treatment system. This advisory process should be designed to engender a sense of trust between the Regie and the local authorities, rather than serve as a forum for the communes to block rate increases. Participation would enable elected officials to understand more fully the basis for the rates that would be charged. One very effective way to include the communes in the decision-making process would be through the proposed syndicate that would play an active role in the setting of Regie policies and its annual programming.

Given the high cost of investment in the sector, it is essential that the sewage agency assume the exchange risk and receive monies directly from the Ministry of Finance without passing through the FEC. The basic question is how to do this in the most effective and expeditious manner. Without developing the capabilities mentioned above, however, it is unlikely that the agency would be capable of assuming this risk.

While the establishment of an independent sewage agency with the institutional character described above would make the ECA project quite feasible, it could take a relatively long time to achieve. It is therefore important to consider more rapid and practical ways to achieve a situation that meets the same basic criteria.

To begin with, the syndicate of local authorities that would become the decision-making body for sewage activities within the region should work with the local Regie to establish a completely separate department within the Regie to handle matters related only to sewage. Cooperation between the syndicate and the Regie in setting up this new department would provide an opportunity for the development of better overall relations between them and a chance to put the required institutional framework in place to ensure the long-term viability of the resulting entity. Staff members from the Sewage Department of the Commune could also be seconded to work in this department and to bring along their experience and knowledge of the local situation.

Such an approach to institutional development would allow the new entity to take full advantage of the experience, resources, and personnel that can be found at both the Regie and the commune. It would also permit the commencement of work in a much more timely manner than if an entirely new institution were to be created.

If it were eventually decided to create a totally independent institution for the sewage sector, this agency could eventually evolve into a public-private partnership or an entirely private venture once its financial feasibility was established.

5.2 Training and Project Development

Whether a new department is formed in the Regie or a completely new institution is established, USAID will need to play a continuing role in the sewage sector in the Tétouan area if the ECA loan is to be used in an effective manner.

Technical assistance and support will be required to assist the proposed syndicate in getting started and in helping them to expand the Sewage Master Plan to cover the entire area within its responsibility. Assistance should also be given to the syndicate in establishing its working procedures and relationships to the Regie and to the individual municipalities. The Regie and Greater Tétouan already have technical services that could be involved in implementing the sewage network, the expansion and rehabilitation of the system, and the eventual operation of a new waste water treatment plant. All of these services will require some additional technical assistance and training.

Some training will also be required to establish viable and reliable systems within the new sewage department or entity that will lead to the effective management and administration of accounts and billings. A team of experts may also be required to audit this department or agency on an annual basis to evaluate cost-recovery rates, business practices, and the quality of the services provided. The agency would be required to make the changes recommended by the evaluation team that would ensure the continued feasibility of the project.

Discussions with the USAID Mission in Morocco have revealed that funding is not currently available for this kind of technical assistance. It is important, therefore, that at least a minimum amount of resources be set aside for the necessary assistance to ensure the success of the ECA once Congressional approval has been given to the program and to provide the necessary institutional support that will bring the full USAID-sponsored Tétouan project to the best possible conclusion. USAID has been involved in the Tétouan experience for more than 10 years and has been closely identified with its success. The provision of an effective sewage treatment system and technical assistance in developing the institutional framework that would make its operation sustainable would benefit all parties and bring this long-term project to a successful conclusion.