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URBAN DEVELOPMENT PROGRAM IN TETOUAN

REVIEW OF TETOUAN'S  
PUBLIC WORKS FUNCTIONS

JULY 1991

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Management Association  
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## SUMMARY

In July 1991 a review of Tetouan's public works department was performed. This review was to offer suggestions that could improve the municipality's operating efficiency. A special emphasis was placed on offering comments on establishing a new sewerage services division. Tetouan is being a sewer master plan study so that they can provide wastewater treatment in the future. Due to this new venture for the municipality, an organizational plan was needed so that the new activities could be coordinated with the ongoing sewer system maintenance duties. Listed below are some of the major recommendations from this study.

The administration and accounting section should try to implement a cost accounting approach to budgeting and to develop departmental performance measures.

In special studies it may be more efficient to assign these people to work directly with the other sections.

The roads and lighting section should evaluate purchasing asphalt directly for patching the streets and acquiring a pavement painting machine.

The machinery shop should pursue computerizing their vehicle maintenance records.

Buildings and urban planning should be actively involved in the GIS development.

Environmental operations should become a separate division in the municipality. This concept will help in the development of an enterprise fund for these services.

The first step of an exchange program would send Tetouan officials to the City of Raleigh for a week in October.

In order to incorporate the needs of the sewer master plan study, sewerage services may need to be organized as shown on the attached diagram.

**SEWERAGE SERVICES DIVISION**

ENVIRONMENTAL ENGINEER

Study Engineer

Operations Supervisor

TV Inspect	Flow Measuring	GIS Data
1-TV Tech 1-Flushing Operator 2-Laborers	1-Chemistry Tech 2-Laborers	2-Tech

Maintenance	Rehab	Services
3-Foremen 3-4 Worker Teams	3-Foremen 6-4 Worker Teams	1-Foreman 2- 4 Worker Tjeams

**NOTES:**

In Operations each foreman will be supervising two 4-worker teams.

Tech means Technician.

Rehab means Rehabilitation.

## PROJECT BACKGROUND

Tetouan is a major city in northern Morocco. It lies at the foot of the Rif Mountains along the Martil River and is approximately ten kilometers inland from the Mediterranean Sea. During the past ten years Tetouan has had a major increase in population which has outpaced its housing stock and has resulted in the formation of many substandard communities.

USAID had contracted with ICMA to provide consultant services in the field of public utilities/public works. USAID was working with the Municipality of Tetouan to provide improved housing and basic shelter for some of the areas less fortunate citizens who were living in these slum and illegal sections. In the early stages of this work USAID and Tetouan realized that there were major problems with the infrastructure in certain areas of the Municipality. Also Tetouan had no wastewater treatment facility for its present sewerage system. The domestic waste from the areas 300,000 plus population was flowing directly into the Martil River and was creating an environmental impact for this coastal region. USAID wanted to have these problems addressed while they were trying to help improve the overall housing situation in the area.

The lack of infrastructure had to be corrected because the housing project and other growth in the Municipality needed it. Based on that fact, USAID wanted a US municipality to review Tetouan's public works functions and to offer suggestions on how to improve their operations and to guide them in establishing a new wastewater service division. The City of Raleigh was selected to provide this service for USAID. Raleigh, North Carolina was of comparable size to Tetouan and had a good reputation as being a well managed city with a proven record in wastewater treatment.

For USAID in Morocco, this was the first time that they had asked for a US municipality to provide this type of assistance on one of their projects. Part of the reasoning for this approach is that Tetouan will be offering new services to its citizens and an US city can help by sharing their experiences. Part of this project is to establish a technical exchange program with Tetouan so that the implementation of their wastewater treatment program will be successful.

## I. REVIEW OF PUBLIC WORKS FUNCTIONS

In the Municipality of Tetouan, the public works functions are carried out by the Technical Services Division. The Division is structured into six different sections which are:

- Administration and Accounting;
- Special Studies;
- Roads and Lighting;
- Machinery Shop;
- Building and Urban Planning, and
- Environment.

Each of these sections provide several services to the general public. Over the past five years the staff size has increased from approximately 470 to over 700 people. At the same time, the total budget for Technical Services has had an approximate 25 percent increase from 40 Million Dirham to an estimated 50 Million Dirham. These additional people and funds were needed to deal with rapidly growing population and its related service demands.

A general overview was done by discussing the different sections with staff and observing some of these operations in the field. In the following pages a summary of these observations will be presented. The management staff of the Technical Services Division was extremely helpful and cooperative. The Municipality is fortunate to have these young, dedicated professionals in this Division to carry out their management responsibilities. Everyone seems to be extremely interested in learning new techniques to improve their ability to provide better and more efficient services to the citizens of Tetouan.

### A. ADMINISTRATION AND ACCOUNTING

This section provides overall administrative support to the other sections. There are 8 staff members in this area including the Municipal Engineer. A primary effort of this group is to handle the mandated procedures for purchasing needed supplies and services after another section submits a request. The process for making these municipal purchases is somewhat similar to those used by the City of Raleigh. Accounting will make sure that the appropriate forms are attached to the request and that it is routed for the approval signatures. In municipal governments it is necessary to have these approvals before the item or service is acquired. This section will assign various work tasks to the

other groups for handling.

Administration and Accounting would be the appropriate section to do follow-up on the performance of the other sections, such as checking the time sheets. From the discussions, detailed time sheets are not submitted for review. General time information in the form of "present or absent" is sent to the Administrative Services Division for direct payroll processing. As a general observation, this seems to be the same for the entire municipal organization.

For the Technical Services Division, there is a lack of performance information for the various service activities. It would be beneficial to the organization if some data of this type could be generated. These kinds of facts would help in determining the cost and efficiency of providing their services to the public.

1. Recommendation

This section should start reviewing their other divisions to make sure that more detailed time sheets are developed and used so that personnel costs and staff needs can be better evaluated. It would be fitting to investigate the possibilities of implementing a detailed cost accounting approach to budgeting. This method would have separate budgets for the different sections and would make it easier for them to start calculating the cost for the services that they are providing. With this cost data, performance and efficiency measures, such as cost per kilometer for roadway painting can be determined. This kind of information can be used to evaluate your cost against those of private contractors. Also more detailed data could help management assess future staff needs as the city grows.

B. SPECIAL STUDIES

Approximately 38 people work in this section which is a support group to the other areas. It is comprized mainly of technical staff who will be assigned as needed to the other groups. They will do project studies, provide surveying and inspection services, and assist with report preparation. However, at this time, the staff is not functioning as an independent section.

1. Recommendation

This section is flexible and has done a good job in assisting others. Their work tasks should

be monitored over the year to see if they are spending large blocks of time with the other groups. If so, it may be more efficient to assign these people to work directly with those other sections. This may streamline the organization and improve the management effectiveness.

### C. ROADS AND LIGHTING

Maintenance is the primary function of this section which has 80 employees. The staff is divided with 56 being in the roadway group and the remaining 24 forming the lighting group. The Roads group carries out the activities of patching the streets, repairing the curbs, installing traffic control signs, and repainting the curbs and traffic lanes when needed. Most of this work is carried out manually; however, large painting jobs may be contracted at times. All new roads are built by private contractors and then accepted by the municipality for maintenance.

Street lights, traffic signals, and other public electrical systems, such as water fountain displays, are maintained by the lighting group. The group is divided into two teams. One team works during the day while the second one works at night. Their equipment seems to be in good shape, and there is good overall effectiveness in its supervision.

#### 1. Recommendation

In the roads group, it would be good to review the condition of their equipment for pavement repair. On the day that they were observed in the field, their compaction and mixing equipment was broken down. The crew showed good creativity because they had figured out a way to do the repair at the the job site. The patching material is a mixture of tar and small gravel. Staff may want to look at the possibility of obtaining an asphalt mix from a local plant. If the material is available this would eliminate the need for hand mixing and probably be a stronger material. Purchasing the material from a supplier would mean that the crew could patch more areas in a day. In terms of street painting, the staff should continue to evaluate the purchase of a pavement painting machine. A study should be done to see if a new standard could be used for the no parking restrictions. The alternating red and white stripes are very labor intensive to paint. If this could be changed to a solid red it would save time. Another approach would be to consider

the use of post mounted signs.

The lighting group appeared to well organized and their equipment seemed to be adequate. The group does not have a "change out program" for the different street and traffic lights. It may be desirable to consider such a program because it has the potential of reducing maintenance costs and improving efficiency.

D. MACHINERY SHOP

The machinery shop is a diverse group because it carries out many different tasks. This section maintains the motorized equipment, builds and repairs metal work, operates a carpentry shop, makes banners and hangs these items for holiday occasions. In total, there are 51 employees in this division.

Thirty-five people are assigned to vehicle maintenance including the four guards for security. They are maintaining a fleet of approximately 80 vehicles. The fleet has many pieces of equipment that are over 15 years old. The staff is working hard to maintain these older items. Neat, detailed, and hand calculated records are maintained for fuel and oil consumption as it relates to the rolling stock. The fleet is routinely scheduled for oil and lubrication service which is good preventive maintenance. Yearly total vehicle maintenance cost data is not maintained.

The metal shop does welding work for the vehicles as well as repairing and doing metal work for the other sections. A carpentry shop builds wooden objects which are mainly used in gardens. Banners and related decorations are made by 6 person staff in the ceremony shop. This same group will install these items for the different holiday events which are held in the city.

1. Recommendation

This section is well managed and dedicated to keeping the rolling stock working. The vehicle maintenance records should be computerized so that it will be easier to keep up with total operating costs for a particular piece of equipment. This would eliminate staff from having to keep so many manual records. By having more detailed records it will be easier to determine when to replace certain equipment. With this information the municipality could establish a systematic replacement program.

The carpentry and ceremony groups appear to do tasks which are more closely aligned to the gardens function. In the future when space is available, these activities should be shifted into the gardens group. By doing this, the machinery shop can become a true equipment service depot.

#### E. BUILDINGS AND URBAN PLANNING

Fifteen people are in this section which processes all of the subdivision and building plans for the Municipality of Tetcuan. The subdivision process is a two step process. First a preliminary plan is submitted for review by the staff. The plan is checked for conformance with the existing master plan. It is important to make sure that any plan is compatible with the existing neighborhood structure. A review committee, consisting of the Municipality, Ministry of Housing, and Regie jointly consider each preliminary plan. After preliminary approval, the owner submits the technical plans which contain the detailed data for all road and utility construction. All work is inspected, and the owner must submit certification and warranty letters indicating that all work has been done in conformance with the approved plans and standards.

After subdivision approval, the owner of the new lots can obtain building permits for the actual structures. These plans are reviewed by the same section. While construction is under way, the municipality will monitor the activity, but the main check is to have a certificate from the contractor and architect that all work has been done in conformance with the plans. With that in hand, the owner can have the power and water turned on.

This section approved about 15 subdivisions and less than 900 building permits in 1990. The building activity is less than in past years due to the economy. For each plan and permit, a set of fees are collected before construction approval is granted. This section appears to be well managed and to have a good system in place to handle the approvals in a timely manner.

##### 1. Recommendation

This section should take an active role in the GIS system that will be developed as part of the Sewer Master Plan Study. The staff appeared to be unaware of this matter. Their participation could help develop a more complete data base concerning the land use and parcel information. A second item

would be to study the fee structure to see if those charges reflect the actual cost of that plan approval service.

F. ENVIRONMENTAL OPERATIONS

Environmental Operations is the largest section in Technical Services with approximately 520 staff members. This section is broken into 4 groups which work in the following areas:

Solid Waste;  
Sewerage;  
Gardens, and  
Cemetery.

Each of these different groups will be discussed separately along with its recommendations.

1. Solid Waste

Solid waste is the largest group with approximately 400 employees. This group is responsible for the collection and disposal of the garbage for the city. In the recent past, they have implemented many improvements to aid in the collection process because they had many challenges due to the city's dense development and narrow streets. To deal with that, staff recommended purchasing smaller trucks that could be used in the Medina Area. In addition, they have divided the municipality into zones to improve their overall efficiency. Daily collection is provided because of street vending activities. As an incentive for efficiency, the crews are allowed to go home when they have finished their route.

Once the garbage is collected, it is carried to a landfill on the west side of town for disposal. At the landfill, the garbage is spread in a general way, but there is no compaction or soil cover. Citizens are allowed on the site as well as domestic animals. Due to the concerns of this activity, a special study is being done to address these problems.

a. Recommendations: These recommendations need to be considered along with the more detailed study that a separate consultant is doing on this issue to see if they can fit within that plan.

In the Medina area there is much hand sweeping of the streets due to the market activities. The purchase of a small street sweeper may help improve this activity. All of the collection trucks, big and small, drive directly to the landfill which is on the west side of town. The municipality should

review the possibility of building a transfer station so that the garbage can be trucked by larger vehicles to the landfill. The landfill site should be controlled so that citizens and animals are kept out for public health reasons. If at all possible a source of cover material should be obtained for the landfill. It is probably not enough, but the cement plant close to the site may have a by product that could be used to partially cover some of the garbage. Generally this product would be high in pH which may help to stabilize the decomposing material.

## 2. Sewerage

The sewerage group maintains the sewer mains and will install and repair the service lines. An estimated 50 people work in this section. Presently they have one flush truck which is used to deal with routine blockages. As part of the Sewer Master Plan Study, they will be getting a TV inspection unit and some flow measuring and analysis equipment.

a. Recommendations: With the advent of the new equipment mentioned above, it is time to begin the development of a more refined organizational structure. Staff should be assigned to work on the tasks of TV inspection, maintenance, rehabilitation, and service installation. A detailed discussion of this item will be covered in the Sewerage Services Report. Along with a reorganization, attention should be given to developing more information on locations with maintenance and capacity problems so a plan of corrective action can be developed. Finally the cost of operations for this group should be tracked closely so that this data is available and can be factored in to the anticipated charges for the new wastewater treatment service.

## 3. Gardens

The garden group has approximately 70 staff members and is responsible for the upkeep of the 98,000 square meters of public open space. This group runs a nursery for their plant stock and does some new planting in small areas in street rights-of-way and at intersections. From field observations the garden group is well organized, and they have developed a very good system for doing an annual report which summarizes their activities in detail.

a. Recommendations: This group would benefit if they had some small power tools such as garden tillers and string type trimmers. The main recommendation would be to move the carpentry and ceremony groups into gardens because their activities are tied to the upkeep of the open space. This

type of grouping should help with the overall coordination of these functions.

#### 4. Cemetery

The cemetery group has a staff of 15 and is responsible for the preparation of the grave sites for the deceased citizens. They make their own concrete blocks and slabs for this activity. In addition they make small diameter concrete pipe.

a. Recommendations: From an organizational point of view, this group should be part of gardens. Secondly, an evaluation should be done to see if it is cost efficient to be making their own materials. In the bigger organization of Gardens if they purchase the materials it may be possible to reassign some of people to work on maintenance activities. A final suggestion would be to review the charge for grave site preparation to see if it covers the actual expense.

### G. GENERAL RECOMMENDATIONS FOR TECHNICAL SERVICES

The entire staff of Technical Services is hardworking and dedicated. The management is interested in developing more efficiency in their total organization. The section should pursue the development of a more refined structure. The budget should have separate divisions to correspond with the different sections in the department. The RTI reports have some excellent ideas in them to help improve the overall operation. With the more detailed structure and budget it will aid in calculating performance measures. With some of these measures available it becomes easier to evaluate the services and to anticipate the future needs of the division.

From the field reviews, safety measures were not practiced. Safety training should be set up for the employees and some safety equipment should be purchased for them. As a minimum, the employees should have hard hats, reflective vests for working in traffic areas, goggles for eye protection, and gloves. This would be a good start, and other areas can be added in the future.

With the municipality planning to build a wastewater treatment plant, they should start planning now for the sludge disposal. By having a cement factory in the area they need to work with that industry so they use its cement kiln dust to stabilize its sludge. By mixing the sludge and kiln dust a soil type product is formed. The material can

be used as part of the daily cover in the landfill or applied to the land as a soil additive. This kind of concept should be studied in more detail as they finalize the wastewater study. In the United States this type of sludge stabilization process is patented. The international laws should be reviewed to determine if Tetouan would have to pay any royalty fees.

As the municipality grows it may want to consider making two divisions out of Technical Services. The sections of roads and lighting, gardens, building and urban planning, and machinery shop would stay with technical services. An environmental section should consist of solid waste and liquid waste. These two activities in the proposed environmental section could be treated as an enterprise fund. Here again, this is an idea that has been mentioned in an earlier RTI report. This concept is based on developing user charges for these services. By breaking these functions out, it will help document the cost in the areas so that the fees be calculated.

## II. PROPOSED EXCHANGE PROGRAM

This first part of the exchange program is to assist the Municipality of Tetouan in developing a new organizational structure and to provide them with an overview of how the City of Raleigh prepares its budget. The exchange would involve the Mayor, Municipal Engineer, Environmental Engineer, and any other staff member that Tetouan may want to bring to Raleigh for the initial meeting. This would be scheduled to last one week and set so that the Mayor could return home after two days if his schedule did not permit him to stay for the entire session. The visit should be scheduled for either the first or third week during October of this year. Listed below is a proposed outline of the different topics to be reviewed during this technical exchange session. Additional follow-up can be provided as the Municipality identifies those areas where they would like to have more detailed training from Raleigh.

### TASK 1- REVIEW OF COUNCIL/MANAGER FORM OF GOVERNMENT AND BUDGETING

In this task, the Mayor of Tetouan would meet with the Mayor of Raleigh to discuss this form of local government. After that meeting, the Mayor would meet with the City Manager to review his role with the Council and to explain the total city organizational structure. This activity would take about ½ of day 1.

On the afternoon of day 1, a briefing would be held to discuss Raleigh's approach to Capital Improvement Budgeting which will be followed by Operating Budget preparation. This would take about 4 hours and would close day 1.

### TASK 2- PERSONNEL PROCEDURES AND COUNCIL MEETING PROCEDURES

The first half of the day would be spent by having Raleigh's Personnel Department explain how to develop job classifications, how to do compensation studies, and review our recruitment process. That would be followed by a presentation on the benefits of Safety Training by the Safety Office.

That afternoon the Tetouan Delegation would attend the City Council meeting to see the Council/Manager form of government in operation. At the end of Day 2, the Mayor could return to Tetouan if his schedule did not permit him to stay for the entire week.

### TASK 3- INFORMATION FLOW AND DEPARTMENT ORGANIZATION

On Day 3, the first half will be devoted to information flow in Raleigh's organization. This will be accomplished by attending the City Manager's staff meeting followed by the Public Utilities staff meeting.

In the afternoon there would be a review of the organization of the Public Works and Public Utilities Departments. The performance measures used in the different departments will be reviewed.

### TASK 4- REVIEW OF PUBLIC WORKS

Day 4 will involve a review of the Public Works Department. Particular attention will be paid to the landfill operation and the computerization in the equipment service depot. Discussion would take place on Raleigh's concept of user charges for this solid waste service.

### TASK 5- REVIEW OF PUBLIC UTILITIES

Day 5 will be spent reviewing the Public Utilities Department. This tour will concentrate on sewer operations and the wastewater treatment plant. Special emphasis will be on TV inspection, pipe maintenance, and the industrial pretreatment program. To close the day, there would be a brief discussion on how wastewater charges are calculated.

### TASK 6- FUTURE FOLLOW-UP

Following this first exchange the City could do more follow-up by sending staff to Tetouan to do more task specific oriented training. It would be appropriate to let the municipality determine which item they want

to implement first. Once a specific area has been identified, a proposed exchange program can be developed showing the outline and budget requirements.

#### TASK 7- SEWER MASTER PLAN REVIEW

The review of the Sewer Master Plan is another area of exchange. As the the consultant for Tetouan develops the draft recommendations, the Public Utilities' staff could provide comment on the proposed course of action from an operational point of view. In order to have a timely review of this for Tetouan, the draft reports will need to be translated into English. The city's review could be done in two weeks after receipt of the document. The comments would be written and returned to the municipality. If desired the Utility Director could attend the final report meeting to offer input on the type, operation, and location of the recommended wastewater plant.

In closing the City of Raleigh will have direct expenses for a van rental for transportation purposes and for an interpreter. If there is a large delegation from Tetouan it may be necessary to have additional interpreters and vehicles. Based on having one van and interpreter, the projected cost would be approximately \$3000 for the October visit.

### III. SEWERAGE SERVICES DIVISION

As mentioned earlier in the report, the Municipality of Tetouan is undertaking a Sewer Master Plan Study to develop the plans for a wastewater treatment plant. The first step of that process is to do the field reconnaissance to evaluate the existing system. As part of the study, Tetouan will be receiving some new equipment to help with this data collection. The new equipment will consist of a TV inspection unit, flow monitoring and analysis equipment, and computer equipment to set up a GIS system. Along with the equipment the section will receive 4 additional technicians. In the review of this new staffing, it is recommended that consideration be given to adding a new or reassigning an engineer to this effort. This person would be responsible for coordinating the various field activities for the Municipality during the data collection phase of this study. After the study, these tasks will need to be ongoing, and this engineer would handle these inspection and rehabilitation needs for the sewer collection system.

In order to do the study and to continue to do the routine maintenance tasks, a new sewerage service organization is proposed. The new structure should have an engineer to assist the Environmental Engineer in the coordination of the various data collection tasks. This individual would help oversee the GIS input and coordinate the field work of flow collection and TV inspection.

TV inspection should be coupled with the main flushing work. The purpose for doing this is to make sure that the pipe is clean before putting the camera in the line. This will help to insure that the camera will go through the pipe. The cleaning will enable the technician to better see the actual condition of the interior pipe walls. This will mean a better evaluation of the sewerage system. This crew should consist of a technician to run the TV unit, a flush truck operator, and two laborers to assist.

The flow measuring crew should have one technician and two laborers to aid in the installation of the measuring and sampling

equipment. As the data is collected, the technician should maintain good records so this can be factored into future analysis of the collection system. It is suggested that this technician have a chemistry background because the job will be doing some analysis of the wastewater. In the future the person could move into the industrial pretreatment area if the study identifies that need.

GIS input should be done by the two other technicians. With GIS it will be possible to create many layers of system information. The sewer system layer should include the horizontal and vertical control data along with pipe sizes. The topographic information, future and existing land use data, parcel information should be included. All industrial dischargers should be identified in this system. The consultant and staff have a good understanding of the GIS capabilities and will more than likely expand on this data base development.

The remaining staff in the sewer section should be separated into maintenance, rehabilitation, and service installation. This structure would help to define job tasks for the new section. As better records are accumulated, it will be possible to refine and adjust the staff requirements based on work load. It is anticipated that as the inspection is being done, more repair or rehabilitation work will be performed. If the work loads do not reflect a significant number of services to install, then it may be best to let these people stay with rehabilitation. The maintenance crew would deal with correcting sewage overflows and doing preventative maintenance work in the collection system to keep it free flowing. A line diagram of this organization is shown below.

**SEWERAGE SERVICES DIVISION**

ENVIRONMENTAL ENGINEER

Study  
Engineer

Operations  
Supervisor

TV Inspect	Flow Measuring	GIS Data
1-TV Tech 1-Flushing Operator 2-Laborers	1-Chemistry Tech 2-Laborers	2-Tech

Maintenance	Rehab	Services
3-Foremen 3-4 Worker Teams	3-Foremen 6-4 Worker Teams	1-Foreman 2- 4 Worker Tjeams

**NOTES:**

In Operations each foreman will be supervising two 4-worker teams.

Tech means Technician.

Rehab means Rehabilitation.

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As shown in the organizational diagram, the operations section would do maintenance, rehabilitation, and service installations. It is suggested that each foreman would be overseeing two 4-person work teams. This arrangement gives the foreman the flexibility of combining the teams if there is a large work task to do. If not, the teams can be assigned to handle the routine maintenance and repair jobs.

Another suggestion is to divide the city into zones for operational purposes. Three zones, such as a western, central, and eastern division, are recommended as a beginning point. A foreman and the associated two work teams for maintenance and rehabilitation would work in an designated zone. This would enable the staff to become familiar with the sewer system in that area. It has the potential of reducing transportation time, and it will keep the foreman in the same vicinity as the crews.

As funds become available, the municipality needs to purchase trucks for each nine person work group. This vehicle would transport the people and the various equipment and supplies. The municipality should see an increase in performance and efficiency of the staff. In the future a two-way radio system could be added to the vehicles. A communication system aids in dispatching the work force and coordinating the overall work activities.

The maintenance group needs some sewer rods and cutters which would assist them in removing or breaking through a blockage in the pipe. These flexible steel rods can be mounted on the trucks or on separate trailers which would be pulled by the trucks. This equipment will be demonstrated when Tetouan's officials visit the City of Raleigh later this year.

As Tetouan prepares for the Master Plan Study, they need to have some safety training and purchase some safety equipment. Working in the sewer system can be very dangerous. The workers may encounter methane gas, an oxygen deficient atmosphere, and unstable soils, just to mention a few of the hazards. The municipality may want to consider buying some gas detectors, air blowers, and safety harnesses for those people who would enter a manhole or other type

of confined space. This equipment and related training for the staff would help to protect them and possibly prevent some accidents. This is an area that the City of Raleigh could assist in if the municipality so desires.

In closing, these suggestions should help Tetouan begin their Master Plan Study and continue the daily operations. It is important that they keep work records of the activities so that the organization structure can be refined in the future. Also, these records will help to document costs and the need for future staff. As the officials from Tetouan visit Raleigh in October many of these ideas can be expanded upon.