



**TOTAL QUALITY MAINTENANCE
IN
LOCAL GOVERNMENT
OPERATIONS AND MAINTENANCE**

TQMn BOOK1

**READER CONCEPTS
AND STRATEGIES
WITH CASE STUDY**

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FOREWORD

One of the principal functions of local government worldwide is the construction, maintenance, and operation of urban infrastructure systems and services. The task of building and maintaining adequate water and sewer systems, roadways, and other vital services and upgrading them to meet growing populations and changing technologies is dependent upon good management. In turn, good management is dependent upon competent managers who are trained to employ the latest methods in planning and quality control.

This set of training materials was developed, in response to the capacity-building objectives of Agenda 21, as a skills building programme specifically to benefit public managers with Operations and Maintenance (O&M) responsibilities. The term total quality maintenance (TQMn) is used to symbolise the programme's emphasis on establishing and achieving quality in the performance of O&M functions. The programme consists of two workshop designs. The first design is classroom based with participants working in teams to master the concepts of TQMn and plan specific "back-home" applications. The second workshop design places participants in consultant roles, enabling them to learn while applying their TQMn skills in collaboration with the managers of a host local government.

Unlike many lecture-based management training programmes, the TQMn workshop series employs a mix of presentation and interactive learning based on participant team planning and decision making. The programme features a pre-workshop data gathering assignment, a concept reader with a detailed case study drawn from an actual field application of the workshop in Tusnad, Romania, and a workbook for use by participant teams to compile data from the workshop for back home use. Other materials in the series include an agenda with detailed notes for trainers and another agenda without trainer notes.

It is expected that these training manuals will be an important contribution to human resource development and institutional capacity-building for maintenance and operation of local infrastructure and services, and in this way will facilitate best practices in settlements management and development, one of the key objectives of the Second United Nations Conference on Human Settlements (Habitat II) to be held in Istanbul from 3-14 June 1996.

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INTRODUCTION

Operations and maintenance

Many local governments around the world have a problem when it comes to managing their operations and maintenance (O&M) functions. There is often little commitment to maintaining fixed assets once they have been acquired or constructed. And this directly affects the government's ability to operate programmes and services that are dependent on maintenance as a critical input to the operation. The consequences of neglecting the on-going responsibilities of O&M are substantial.

- Major investments are jeopardised
- Debt services outlast the life of the investment, putting an unfair burden on future taxpayers
- The real costs of operations and maintenance, in the long run, soar
- The quality of local government's programmes and services plunge
- And the municipal staff is de-motivated, even demoralised, in its efforts to serve its customers, the citizens of the community.

Workshop overview

Unfortunately, there will be no "quick fixes" to the malaise that characterises most O&M systems in local governments. The difficulties surrounding O&M are deep-seated and complex. They are political, financial, technological, environmental, and, at times, even emotional for those who are involved in trying to respond to this local government dilemma. The dilemma is also *managerial*, and that is what this training is all about.

The challenge of O&M, for many local government managers, can be addressed successfully if a more systematic and rigorous management approach is taken by those who are responsible for O&M. This training is designed to provide insight into such a managerial approach. The main focus of the training is a five-day residential workshop on Total Quality Maintenance (TQMn).

The pre-workshop tasks. The TQMn learning experience also involves several hours of data collection, reflection, and writing by each participant, or a team representative, on one aspect of their O&M responsibilities before they depart for the workshop. One might call this series of pre-workshop tasks one of the prices of admission. But, they are designed to do much more than test your commitment to learning how you can manage your O&M responsibilities more effectively and efficiently.

The data you bring with you to the TQMn workshop will form the basis of a week long investigation into an O&M activity that **you** want to learn how to manage better. Since each participant will be bringing information on an O&M challenge of their own, you will have an opportunity to learn about a wide range of local government O&M activities. The workshop will be centered around these actual participant situations, so it is important that the pre-workshop assignments be completed as requested.

The training. It includes a discussion of the operation and maintenance challenge in local government. Materials to facilitate the training include a workshop design, a second workshop design that includes notes to assist trainers in conducting the workshop, a workbook containing exercises to be carried out during the workshop, and materials on the pre-workshop data collection assignment.

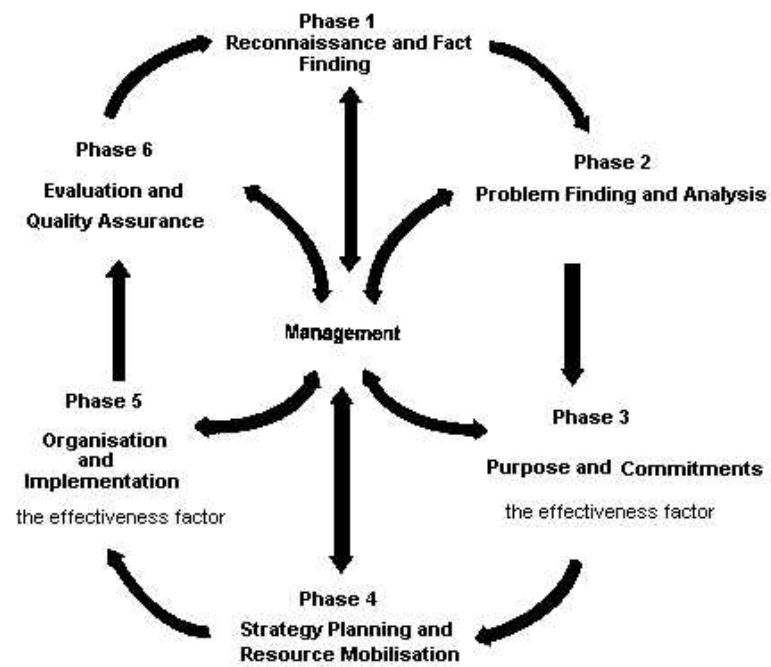
Not all these written materials will be provided to the workshop participants. For example, the trainer's notes and material are designed for use by the trainers and will be of limited interest to managers. Finally, the questionnaires designed to collect and analyse information before and during the workshop have been brought together as a workbook that can assist participants implement their learning efforts once they return home.

As said earlier, there is no panacea available to solve your O&M problems and challenges. On the other hand, O&M performance can be improved significantly through more systematic, rigorous, and enlightened management practices. That is what this training experience is all about.

The concepts and strategies of Total Quality Maintenance are based on a phased process of inquiry, reflection, and action. They are:

1. Reconnaissance and fact finding
2. Problem finding and analysis
3. Purpose and commitments--the *effectiveness factors*
4. Strategy planning and resource mobilisation
5. Organisation and implementation the--*efficiency factors, and*
6. Evaluation and quality assurance.

Total quality maintenance - TQMn



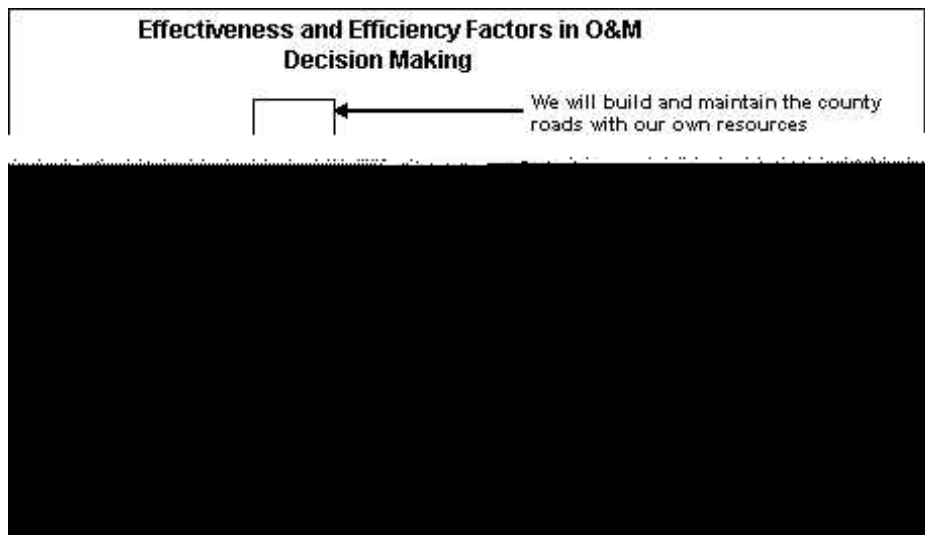
FOCUS ON RECONNAISSANCE AND FACT FINDING

Phase 1

Operation and maintenance functions are vastly under-resourced and under-valued in many, if not most, local authorities. The people who allocate and manage scarce community resources are inclined to defer maintenance on existing facilities and systems and to invest available resources in new projects with high public visibility. The burden for creating an understanding and appreciation of regular investment in O&M functions is largely in the hands of those who are directly responsible for O&M in their local governments. But, they cannot perform this function if they do not have a reliable management information system.

Developing a management information system (MIS) and database to support O&M decision making can be a daunting responsibility. But it doesn't have to be. Often these kinds of systems are data intensive and lack usable information, something O&M managers desperately need. Usable information, for O&M managers, is information that will help them (a) make informed decisions and (b) convince their superiors to support those decisions.

The importance of effectiveness and efficiency was discussed in the Pre-Workshop Assignment. If you recall, effectiveness was defined as "doing the right things" and *efficiency* as "doing things right." Let us explore these concepts in terms of developing an O&M management information system. First, the local government must be clear about what it should be operating, maintaining, and monitoring *directly*; that is, with its own resources the--*effectiveness factor*. We emphasise directly because local authorities sometimes do things they should not do, or do things that someone else can do better. In the later category are those programmes and services that local governments have responsibility for providing, given pre-determined standards of performance, but may not do with their own employees.



For example, a local government may decide to contract out the maintenance of streets to the private sector. Even under this arrangement, the local authority would still retain control over costs and the quality of work completed. On the other hand, the council may decide, in consultation with a neighbourhood group, that the authority can no longer afford to maintain a neighbourhood meeting facility and need to find a suitable alternative solution. The neighbourhood, which needs the facility, might form an association and assume all responsibilities for maintaining and managing the property. The local authority might even decide to deed the property to the new association, which would relieve them of all responsibility.

These are examples of both doing the right things (effectiveness) and doing things right (efficiency). In the case of the street maintenance, the municipal council decided that it was *the right thing to do* (few local officials would argue otherwise) but *the right way to do it* was through private sector contracting, based on written standards and on-going

monitoring and evaluation of performance. Regarding the community meeting facility, the council decided that continuing to maintain and operate it was not the right thing for council to do. Nevertheless, the council was efficient in its decision making process since the facility will continue to be available to the neighbourhood residents.

Step 1: MIS: Inventory and decision making

The first step in carrying out the reconnaissance and fact-finding phase of TQMn is an inventory of all your current O&M responsibilities, regardless of the current status of operation and maintenance. It is a subtle distinction, but important. For example, your municipality may be responsible for maintaining several public buildings but has done nothing for several years to fulfil that responsibility. Such an inventory may surprise you and others but, it is the first step in getting O&M responsibilities under control.

Once the O&M inventory is complete, decisions should be made about whether or not all these activities are *the right things to do*. Those that are not should be spun off in some manner that does not adversely affect the operation of the local government or the provision of services to the community. Those O&M functions that are the right thing to do may not need to be done directly by the local authority. So, the next set of enquiries should be around who can do better those things that are right for the local government to continue to do. The O&M functions become much more manageable when they are (1) understood, (2) quantified, and (3) sorted into who-needs-to-do-what-categories for some serious decision making and problem solving.

Here is one more simple example of how an inventory can assist in simplifying the O&M agenda. Many local authorities have unused and unusable equipment in their public works yards. Sometimes this equipment even takes up valuable space inside the public works buildings. If you ask why this equipment is cluttering up valuable space and why it is not disposed of, or repaired and put back into operation, there will be a hundred and one reasons given. The biggest reason, is never stated -- *poor management*.

Step 2: MIS: Information system development

The inventory and subsequent ' decisions and actions about *doing the light things* will put your local authority into a better position to manage what remains under the O&M responsibility. At this point the fact finding becomes much more detailed, of the kind that was requested in the pre-workshop assignment. For example, for the equipment that remains (after the inoperative, obsolete, and unserviceable equipment is removed from your public works yard) you will need to record information about its age, operating status, source of spare parts, frequency of use, etc. This baseline data then becomes the foundation for operating information that is maintained on a regular basis. This operating information would include such information as fuel and oil consumption, amount of usage and when, and information like tire condition and wear, so future requirements can be determined and planned.

A management information system should be built around the specific needs of the organisation, not copied from some theoretical manual. Collect only the information and data you need to operate and maintain your functions successfully and no more. But, collect the information and data you do need and use it to make decisions. Several problems surround the development of an MIS. The system becomes too complicated and remains only a concept. Or it is set up, the information and data collected, but never used to manage O&M. All these are common misuses of MIS. Having no management information system at all is better than one that is poorly designed and operated or grandly designed and operated but never used.

Reconnaissance

Reconnaissance is a fancy word for managerial awareness or what some managers now refer to as "managing by wandering around" (MBWA). MIBWA has been referred to as "the technology of the obvious." It is the manager's way of seeing and hearing what is happening in the immediate environment and responding to it with a managerial initiative. How many of you work in a dismal, dirty office that could be painted by the road maintenance crew on a rainy day? Or have driven around an enormous pothole in the road to the office so many times that you do not see it any more? Or have not been able to park your vehicle in the public works garage because several pieces of broken down equipment have been taking up valuable space for years? TQMn requires initiative, not only by the manager, but every employee who is involved in any way with O&M.

TQMn: Summary of phase one

The first phase of a Total Quality Maintenance programme is reconnaissance and fact finding. It is knowing the O&M territory and responsibilities by performing a thorough inventory of all O&M functions. It is also a time when some limited changes in O&M responsibilities, or physical resources, might take place. It is very possible that the O&M scale of activities can be "slimmed down" without jeopardising internal operations or external services. Once this initial cut back in O&M activities has been accomplished, it is time to decide what kind of information is required to manage what is left, (which will probably be most). These information requirements would then be transformed into questions or data inquiries that would (a) be easy to administer and (b) provide reliable and useful information for decision making.

Key points in reconnaissance and fact finding

- Carry out a detailed reconnaissance and fact finding mission of all O&M activities and resources
- Develop a written inventory of all O&M assets and activities
- Decide what O&M activities should be done by your local government and what should be done by others
- Develop a practical and reliable management information system to help manage O&M activities
- Be assertive in managing your Total Quality Maintenance (TQMn) programme.

FOCUS ON PROBLEM FINDING AND ANALYSIS

Phase 2

Operations and maintenance (O&M), as a category of management responsibility, is too encompassing to address in any generic way. To analyse O&M, with any precision, it is necessary to break it into manageable pieces. This means, among other things, that it is difficult to prescribe a process that will be specific to a particular O&M function. Such "cookbook" approaches are not very helpful anyway because they tend to curb creative and analytical thinking. Given these constraints, here are some thoughts on how to approach and analyse just about any O&M situation.

Defining the problem

One of the first principles of problem solving is to define the problem, or sometimes to find the underlying "real" problem. Many managers are not as skilled as they need to be at defining real problems. For example, there may be a street in your municipality that has been repaired three dozen times in the past two years but the repairs never last long. Problem? Yes and no. More than likely, what we are calling "the problem" is really a *symptom* of a more fundamental problem. Maybe there is a small spring under the base and it keeps eroding and under-mining any effort your crews put forth to "fix" the street. But, you say, we can't afford to solve the **real** problem. But fixing the symptom time after time may be much more costly than investing in a solution to the water intrusion problem.

Or you might be saying that the problem is not potholes but a lack of human resources or money. The **problem** is, "we need more labourers." The **problem** is, "we need a bigger budget allocation." No, these are not the real problems. They are solutions. If you hire more labourers, you effectively eliminate many other options, like contracting repair work to the private sector. If you use lack of money as an excuse for not solving a problem, you are not doing what you were hired to do: **manage**. Defining a **solution** as the problem is worse than fixing a symptom because it often closes off other problem solving possibilities. That is not good management.

Do not take for granted that you know what the **real** problem is. When you are tempted to think the problem is simple, think again. The following questions will help you get beyond that initial period of false confidence that traps so many of us in the problem solving process.

- **What is the problem--the real problem?** We have been discussing symptoms and solutions that go around dressed like problems. Do not be fooled by them.
- **What is causing the problem?** Some street departments that spend all their time fixing potholes never stop to ask why the potholes are there in the first place. If they did, they would probably do something different, like fix the problem that is allowing potholes to re-invent themselves so often.
- **When and where is it a problem?** These questions help you pinpoint the source of the problem. If the potholes develop every rainy season and happen more frequently in the south end of town where it is hilly, you may be able to attribute the problem to poor drainage. Fix the drainage **problem** once rather than the pothole **symptoms** every time it rains.
- **Whose problem is it?** This is just one of a series of questions that fall into the "who" category that are important to ask when trying to solve a problem. For example, who else is interested in solving the problem? Would they be willing to contribute to the solution? Who might be opposed to solving the problem? Odd question, but it might reveal some keener insights about what to do about it.
- **What would happen if we did not solve the problem?** Another seemingly odd question, but sometimes problems disappear, or at least become less important, with the passing of time. And sometimes they can reach a critical stage if something is not done quickly to remedy them.

While the above questions sound like they are more a part of data gathering than analysis, you will be surprised how many times problems can be solved by understanding them better. To be sure your description of the problem can be

understood easily by others, apply the "3-C" Problem Definition Test.

"3-C" Problem Definition Test

Clear: Would someone unfamiliar with O&M, like a town councillor, understand your description of the problem?

Concise: Is your way of describing the problem sufficiently brief and to the point?

Complete: Is anything important left out in your description of the problem?

A problem solving questionnaire

Understanding your problem is half the solution. The other half is deciding whether or not an attempt should be made to solve it, and how soon. Finding answers to the following questions, using a simple rating scale, can help you reach a "go-no go" decision.

- **How urgent is it to find a solution to the problem?** A problem is urgent if it requires immediate attention to avert a crisis, such as the complete shut down of water service owing to a major supply line rupture.
- **How important is it to find a solution to the problem?** A problem is important if neglecting it could result in serious consequences for the future of the agency and its customers, like the failure of an O&M department to inspect and clean sewer lines on a regular basis.
- **How feasible is it to solve the problem?** Some problems cannot be solved with existing levels of technology or would require a financial investment that far exceeds the capabilities of the agency in charge.
- **Is it within your control to solve the problem?** The cause of a problem may be outside the legal jurisdiction or political influence of the agency. Or a solution may depend upon the approval of bodies that have little interest in solving the problem or, perhaps, have an interest in preventing the agency in charge from solving it.
- **Are you willing to make a personal commitment to solve the problem?** Problems become problems because of someone's incompetence or neglect over a period of time. Correcting them may call for a sizeable investment of time and even some personal risk.

Key points on problem finding and analysis

- Separate problems from symptoms and solutions
- Test the understandability of your problem using the three C's: *clarity, conciseness, and completeness*
- Decide whether or not to invest time and energy on a solution to the problem
- Develop a common understanding and commitment to O&M problems with those who can help you solve them.

FOCUS ON PURPOSE AND COMMITMENTS (THE EFFECTIVENESS FACTORS)

Phase 3

Purpose

Purpose is another aspect of O&M effectiveness, or doing the right things. Purpose can be looked at in two ways: (1) What purpose guides the local authority in addressing its O&M challenges? (2) How is managerial purpose structured within the organisation to focus authority and responsibilities?

O&M goals. The first aspect of purpose has to do with the overall orientation of the local authority toward operations and maintenance. One way to specify the organisation's O&M **purpose** is to determine where you want the local authority to be, in respect to operations and maintenance, in three to five years. In other words, what O&M goals do you intend to accomplish within this longer time period?

Thoughtful expressions of purpose stated as worthy 3-5 year goals are essential to establishing O&M as essential and valued functions within your local government. If you do not know where you want to be with your O&M programmes in three to five years, the chances are you will end up somewhere that you do not want to be.

Goal: Rebuild 50 kilometres of county roads over the next five years

O & M objectives. Objectives are statements of purpose, like goals, but with a shorter time horizon. Objectives are specific and easy to measure. They are useful to the O&M manager as a way to measure progress toward the longer-range goals to which they are related.

When your O&M goals are in place, the next thing you need to do is break each of the goals down into several short-term objectives, like the one in the example above, that can be achieved in one year increments. Objectives can also be thought of as outcomes or outputs. The use of these words may make the process a bit more realistic since most of us tend to think in outcome or output terms. In other words, what are the specific O&M outcomes, or outputs, you want to be able to point to at the end of the year and say "we planned for these and they were accomplished."

Objective: Complete plans for resurfacing 20 kilometers of roads at or under budget within 12 months

Commitments

We have talked a lot about commitment to O&M, and rightly so. It is such an obvious and fundamental problem for those who are trying to solve the bigger problems of effective and efficient operation and maintenance programmes. Commitment comes through understanding, and this puts O&M managers in the role of educators. Commitment also comes through involvement in decision making. Councillors, and others who influence and control the allocation of scarce resources, need to be brought into the O&M planning (decision making) process more directly.

One way to determine where you can develop a stronger and more encompassing commitment to O&M in your municipality is to do a stakeholder analysis.

An analysis of stakeholders can quickly identify all those who have a "stake" in an effective and efficient O&M system. After the list of stakeholders is compiled, the next step is to determine who on the list can provide the greatest support to O&M, both now and over time.

The Pareto 80/20 rule is useful to apply in the analysis of stakeholders. This is a process of separating the "vital few" from the "trivial many." Essentially, it identifies 20% of the stakeholders as those who can deliver 80% of the support. The point: Do not spend your time with the 80% who can provide only a fraction of the support you need.

Stakeholder

Any person, group, or organisation affected by the causes or consequences of the local authority's operation and maintenance programme who can assist in getting the necessary resources to implement a sustained O&M programme.

Key points on purpose and commitment (the effectiveness factors)

- Set intermediate (3-5 year) goals for O&M that are realistic, achievable, and have a positive impact on service to your constituents.
- Decide what your local government should no longer be doing in O&M and what others can do better and cheaper.
- Commitment to O&M must be earned. Understanding and involvement are the foundation stones on which commitment is built.
- A stakeholder analysis will identify all those with a stake in successful O&M activities.
- Applying Pareto's 80/20 rule will help identify those stakeholders who can make a difference.

FOCUS ON STRATEGY PLANNING AND RESOURCE MOBILISATION

Phase 4

Strategy planning

Planning strategies for the accomplishment of goals and objectives is really managerial decision making. Most managers confuse planning with a process that involves only planners and others who are removed from the heat of action. Not so. And this is why *planning strategies for action* is so important as an integral step in the TQMn process.

Strategies are broad courses of action devised to place an agency in a position to achieve its objectives. Where an objective describes what is to be achieved, a strategy describes what must be done to achieve it, stated as a planned course of action. Derived from an objective, a strategy leads inevitably to an action plan that spells out in detail how the strategy will be carried into operation.

Strategy

Prepare detailed specifications for road surfacing that comply fully with ministry standards and provide the department with a fair and impartial basis for comparing alternative road design proposals.

Two things are important to consider as you enter the strategy planning phase of TQMn. First, all the information, analysis, and reflecting that has gone into the process to date gets factored into this series of managerial exercises. For example, all the information on equipment, usable or not, is brought into the picture. You already have made some decisions about what you want to accomplish and by when. And you have a new appreciation of who the stakeholders are and how they might be recruited to help you put an O&M action plan together.

Secondly, and it ties right into the last comment, planning is not done in a vacuum. It should involve, in appropriate ways, those who have a major stake in helping you implement your O&M strategies. While it is not possible to involve all these people in the workshop, it is imperative to seek their involvement when you return home and begin to build on what has happened during this training opportunity.

Strategy alternatives

One consideration in preparing strategies is the possible elimination of those O&M functions and activities that your local authority should not be doing at all. In that weeding out process, you should also determine if someone else should be doing those things. If so, help them assume the mantle of leadership.

There is also the category of O&M functions and activities a local government should provide but not implement directly with its own employees. If someone else can perform these functions and activities more inexpensively, at the same or a higher level of proficiency, then they should be given the opportunity. This has been described in the literature as government doing "less rowing and more steering." (There may also be extenuating circumstances that warrant transferring authority for the performance of municipal programmes and services to the private or non-governmental sectors.) Involving the private sector in public programmes and services does not relieve the local government of its responsibilities for assuring the quality, level, and equity of constituent programmes and services, all effectiveness factors. However, it does increase your local government's opportunity to be more efficient, to do things right.

Action planning

Strategies spell out what is to be done to achieve O&M objectives. In order for these strategies to be useful as guides to program implementation, more detailed planning is necessary. Action planning is the detailing of responsibilities that must be assumed and tasks that must be performed to get approved strategies in motion. In other words, action planning is deciding:

- who does what with whom;
- where and when they will do it;
- what resources they will need; and,
- how we will know if the outcomes have been achieved as planned.

As you can readily see, action planning is a highly specific form of management decision making essential to making the transition from planning to implementation.

Benchmarking

Good management calls for the creation of quality standards against which actual performance can be compared. A "benchmark" is the best known example of quality related to the performance of a specific function or task. It is a measure of excellence. Developing and communicating benchmarks is an effective way for managers to convey their expectations for individual and work crew performance.

Benchmark

The O&M maintenance crew arrives at the assigned job site at or before the scheduled time, and the appropriate equipment for the job is always available and in operable condition.

Benchmarking is the way responsible O&M managers keep score, providing themselves with answers to such fundamental questions as:

1. Are we doing the **right thing**?
2. Are we doing it the **right way**?
3. Are we doing it the right way **every time**?

Resource mobilisation

Your action plan will tell you the kind of resources you will need to carry it out. In reality, one needs to consider the availability of resources along with the development of an action plan, or be prepared to make changes in the plan if resources are not available within reason. The obvious resource is money and that is, in most cases, the purview of an elected or appointed council. This is also the critical point of support, so it takes us back to the discussions earlier about garnering commitment in the right places.

Assuming that you have gained the commitment to O&M from councillors, your task at this point is to mobilise the necessary resources to carry out your O&M strategic plan. In addition to funds, you will need equipment, materials, human resources, special expertise, and time. Let us look briefly at each of these requirements. Having the right equipment can be a mixed blessing in the O&M world of work. The question is "right from whose perspective"? The key to effective and efficient O&M, when looking at equipment needs, is *appropriate technology*. In other words, is the technology you are considering:

- Readily available at a price you can afford?
- Easy, quick and inexpensive to service and repair?
- The kind your employees can operate and maintain without acquiring new skills through costly training?
- Tough enough to withstand the unique challenges your environment will be offering on a day-to-day basis?

If not, you should reconsider the *equipment requirements* before going any further. A low technology answer that works reasonably well to carry out the tasks required is much better than a sophisticated one that breaks down every other week and takes six months to fix.

The same is true of any *materials* you might need for O&M functions and activities. If you cannot buy it off the shelf of a local supplier, it is probably going to give you headaches down the road.

Human resources, or your O&M employees, are a special category of resources to be considered. Most of what you have in this category is what you have to work with. A simple truism, but this also is a resource that you can grow and develop within your means. What you have in the way of human resources today is not what you will have a year from now if you have a human resource development plan that emphasises personal growth through responsibility and challenge. We want to say more about this aspect of resource mobilisation in the next phase of the TQMn process. For now, it is important to stress that your workers are potentially the most valuable, flexible, and elastic resource you have at your command when it comes to implementing O&M responsibilities.

Time has similar characteristics: valuable, flexible and surprisingly elastic depending on how you use it. Most managers waste vast amounts of this commodity in their efforts to operate and maintain local government plants, equipment, other fixed assets, and the services they are designed to deliver.

Key points on strategy planning and resource mobilisation

- Planning strategies for action is managerial decision making
- Use all the information, analysis, and reflection to date to forge your action plans
- Involve key stake holders, when and where appropriate, to develop your strategies
- Develop action plans that will help you achieve each of the outcomes in your short-term strategic plan
- Benchmarks provide supervisors with a way to talk about quality when discussing performance expectations with their employees
- Resources and support are the key to successful O&M. Acquiring them does not assure success. They need to be managed
- The ability to maintain equipment and acquire materials and spare parts should be considered **before** you purchase the equipment and put the O&M system in place
- People are your most valuable and flexible resource, but their contributions to O&M should not be taken for granted. Employees must be developed to their full potential and managed through enlightened leadership
- Time may be the most wasted resource in O&M. It must be managed every moment in order to capture its full potential.

FOCUS ON ORGANISATION AND IMPLEMENTATION (THE EFFICIENCY FACTORS)

Phase 5

Organisation

There is no magic formula that can be used to organise resources and functions to accomplish operating and maintenance tasks. However, there is a strong tendency to organise O&M tasks the way they have been organised in the past. And past organising practices often follow the bureaucratic model, which is highly structured and hierarchical in nature. There is a movement away from the bureaucratic model toward more fluid strategies for organising people and tasks.

Probably the most popular approach to emerge in recent years, in terms of organising resources and tasks, is the task-oriented team and the notion that organisational boundaries should be flexible and fluid to accommodate the needs of the organisation and its constituents. To define the process briefly, "form follows function."

Teams. The Total Quality Management movement that has swept the industrial world in recent years puts substantial emphasis on the use of teams to plan and implement O&M activities. We will mention only two types of teams at this time to give you an indication of how they can be used. The first is the *self-managed team*.

Self-managed teams consist of a line supervisor or lead employee (who is the team leader) and all other employees assigned to a specific operation or maintenance responsibility. Here are some characteristics of these types of teams:

- The process the teams manage is well defined;
- They plan their own work schedules and report these to their supervisors on a routine basis;
- They are supported by management teams; and
- The team leader trains the team in TQMn methods, helps them make decisions and conveys their concerns and suggestions to management.

Forming self-managed teams in an organisation that has operated with highly centralised decision-making policies and processes will take time and training, but the advantages should be worth the effort. Assignment of responsibilities and delegating the authority and resources to carry out those responsibilities, are obvious voids in many organisations. And the overall costs of highly centralised decision making, both monetary and developmental, are enormous. When decisions are jealously guarded at the top, there are inevitable delays in operations, the costs go up, and supervisors and others are thwarted in their development. Under such circumstances, supervisors and workers are certain to be de-motivated. These are heavy prices to pay for managerial control. The second type of team we want to mention is the *cross-functional improvement team*. This is a team consisting of managers and key employees from several different functional areas working on an issue that involves all of them. Imagine that your local authority is planning to open a new sewage treatment plant. While the plant may be operated and maintained by *self-managed teams*, it will be important to convene a cross-functional team, consisting of selected procurement and accounting personnel, the engineering department, and others who will be needed, not only to bring the new operation on line but to assure its smooth operations and maintenance from that point on. Such team meetings also may include members of the environmental protection staff if there are potential violations to certain policies that have been adopted in relation to the operation of the new facility.

Implementation

Implementation becomes much easier if all of the tasks discussed earlier have been carried out in other words, properly managed. Implementing O&M requires thoughtful planning and analysis before the equipment is turned on and the employees sent into the field. And yet, it is not difficult to get the impression, in many local governments, that little or no planning and preparation takes place when it comes to O&M implementation.

- Work crews arrive on the job site without materials to work with
- Equipment breaks down because it has not received even the slightest bit of routine maintenance
- A piece of expensive equipment, acquired under a multi-lateral loan agreement, is put into operation without the operator being trained. It becomes inoperative in a few weeks
- A complicated processing plant is installed that requires parts and materials that are not available in country. A

- serious breakdown occurs, interrupting service for several weeks
- The workshop supervisor sends a requisition to the finance department for garbage truck tires. Several weeks later, when two of the three trucks have tire blowouts, he finds out the requisition is still in someone's in-box
- The public works supervisor is called to the town manager's office before the crews have reported for work in the morning, and they arrive only to find there is no work schedule for them to follow. This happens frequently because the supervisor refuses to delegate any decisions to the crew members or does not plan ahead.

Sound familiar? Probably too familiar. And yet, most if not all these situations could have been avoided through better planning, a review and change of cumbersome procedures, more enlightened management styles, training, and a system that honours some basic TQMn standards and values. Many O&M problems can be avoided if they are anticipated before hand. This requires forward planning and strategic thinking before implementation begins. Now, a look at some implementation strategies, those things that can be done during implementation.

Supervision. First, the process for selecting first line supervisors is often flawed. Effective on-line supervision may be the most important implementation resource when it comes to carrying out O&M responsibilities. Nevertheless, it is a weak link in most local government O&M situations. Three factors contribute to this dilemma. The selection process may become political, be inhibited by archaic personnel practices, or simply not be seen as important in building a strong organisation.

Secondly, supervisors are often promoted from the ranks of those they now supervise and are given no training in supervision. Just because someone is technically competent in performing the tasks he or she will be supervising does not mean the person will be effective in managing people, materials, and the other tasks associated with supervision.

Finally, most supervisors are not given enough authority and responsibility to perform their role successfully. Delegation, for whatever reasons, is not widely valued or practised as a management strategy. In many countries that have been under colonial rule, delegation may be attributable to the "handing down" of practices and behaviours that seemed to have worked before independence. But the rationale for bureaucratic and highly controlling management styles was very different under those circumstances.

If you think this is a bit harsh, stop for a moment and think about how decisions are made. Does your organisation operate with the system where most decisions regarding the acquisition of goods and materials or interaction with outside agencies, to name just two, require a "file" to crawl its way up through the bureaucracy to the very top before anyone can do anything? Nothing is more depressing than seeing dozens of such files (the kind tied up with red tape) sitting on the chief administrator's desk, file cabinets and coffee table, awaiting his or her signature. You also know the chief administrator has just left for an extended study tour half way 'round the world and hates to delegate any decision to anybody. It happens! To summarise, effective supervision depends on good personnel selection to begin with, training in supervisory concepts and skills, and greater freedom and responsibility to perform the role.

Scheduling and deployment of resources. The next important function to be factored into the implementation of O&M is the timely and strategic scheduling and deployment of resources to perform required tasks. And, this means **all resources**: human, equipment, materials, funds, and time.

Archaic and unnecessary procedures and regulations. Many O&M efforts are hampered by cumbersome and useless procedures and regulations. These barriers can be eliminated through enlightened management practice, awareness on the part of those who encounter these barriers coupled with a willingness to act to change the system, and maybe even incentives for carrying out "search and destroy missions" against these insidious enemies of O&M.

Organisational habits. Habits can be troublesome when implementing TQMn. These are the traditions that continue to be honoured even though they are no longer useful to the accomplishment of the organisation's goals and objectives. "But, we've always done it that way." Sound familiar? It is the worldwide retort by those who are threatened with new ways of doing things. When this argument prevails, outmoded organisational habits will control the way the authority does business, for better or worse. It is a good idea to list those habits that can get in the way when implementing TQMn and to identify ways to change them.

Performance monitoring. We are not talking about a "watchdog" approach to monitoring but a supportive strategy of interaction between line operations and senior management personnel. Such an approach would assure first line supervisors and their work crews that management is interested in what is going on, is looking for compliance with established benchmarks, and is prepared to offer assistance when needed.

On-the-job training and development. The most effective, efficient and opportune place to train and develop O&M employees is on the job. And yet, very little effort is made in many organisations to tap this opportunity. Some educators talk about the concept of *just-in-time* training; that is, just in time for the training to be used on the job. The notion is that employees learn best what they can apply immediately. It is action oriented and has direct payoff in job performance.

The best trainers in these circumstances are usually the supervisors and middle managers who have the knowledge and skills required and are willing to share them with the employees. But these individuals are not always effective in helping others learn. Sometimes supervisors and managers are more inclined to perform the task themselves, or to complain that nobody knows how to do it, than to help a subordinate learn how to do it. If your supervisors are not effective coaches and on-the-job trainers, you might want to provide special training for them. It can pay big dividends in job performance and worker satisfaction.

Key points on organisation and implementation (the efficiency factors)

- Re-examine the organisational structure to see if it supports good TQMn principles and practices
- Delegate responsibilities to the lowest practical level of operation and maintenance and provide the authority and resources to carry them out
- Remember, form follows function, or should and does in those organisations that are organised to carry out programmes and services efficiently and effectively
- Implementation does not just happen on the job. It takes advanced planning and strategic thinking before it happens
- Effective supervision does not just happen either. It takes selection of qualified and committed personnel, proper training and development, and freedom, authority and responsibility to do the job
- The scheduling and deployment of resources is a weak link in many O&M systems
- Archaic and unnecessary procedures and regulations cost time and money, thwart job performance, and ultimately have an adverse impact on employee morale and customer service
- Outmoded organisational habits developed during earlier years can hinder the organisation in accomplishing its purposes
- Successful O&M implementation requires supportive monitoring of job performance from above
- On-the-job training and coaching are the best tools any supervisor has to get the task done right the next time around, and to grow people in the process.

FOCUS ON EVALUATION AND QUALITY ASSURANCE

Phase 6

Two issues are involved in any evaluation: Did you do what you planned to do? How well did you do it? Simple questions, but profound in their implications. The planning processes highlighted earlier, where you established intermediate goals (3-5 years) and outcomes for the fiscal year, is a logical departure point for looking at overall performance. These will help determine how well you are doing against the goals and benchmarks established at earlier dates.

Quality assurance is much more difficult to measure, particularly in many of the public sector services being delivered by local governments. The dynamics of the customer-producer relationship is different from that found in the private sector where, hopefully, there is competition as an incentive to produce quality products and service. Nevertheless, there are ways to improve the quality of public sector programmes and services, even functions like maintenance that serve an internal audience. These also require some kind of predetermined standards or benchmarks from which progress can be measured.

Vehicle maintenance is an example of a service that is largely oriented toward other employees (leaving out, for purposes of this discussion, public transportation vehicles). A goal might be established at the beginning of the fiscal year to reduce overall vehicle "down time" to 10% of total operating time, based on normal hours of operation. In evaluating maintenance performance against this goal, you would want to determine if, in fact, the goal had been met. You would also want to look at the overall costs involved. Yes, the goal was met, but costs soared by 3000%. Outrageous! Not necessarily. If your maintenance budget was unrealistically low the previous year, and vehicle down time was, in turn, outrageous, then perhaps this outrageous increase was not so outrageous.

Perhaps the 10% downtime was limited largely to two pieces of equipment that were critical to road maintenance and they were out of operation for most of the season most favourable to this maintenance function. The overall goal set for the vehicle maintenance crew was met, but it was a disaster for the road maintenance crew that was counting on those two vehicles to meet its goals. As you can see, it is important to look at quality assurance, not just from the standpoint of some predetermined goal for one work unit, but also from the perspective of the customer. In this case, one customer was the street maintenance crew, and the crew was not too happy.

Effective performance and quality assurance measures are not left to be evaluated at the end of the budget period or the termination of some task assignment. These are processes that need to go on continuously, if they are going to be used as management tools to improve O&M efforts. To reiterate, were predetermined goals accomplished (effectiveness) and how efficiently were these goals carried out? Efficiency would include such criteria as: costs incurred, benefits derived, timeliness of goal accomplishment, adequacy based on need, consideration of alternatives, and side effects, both good and bad.

Key points on evaluation and quality assurance

- Evaluating performance and quality involves three basic enquiries:
- Did you know what you said you were going to do? How well did you do it? Did what you do result in the intended consequences?
- These kind of enquiries require that you have goals to begin with and criteria by which you will compare them with actual results
- Quality and performance assurance programmes should include all aspects of O&M, including those that service internal units within the organisation
- These are on-going management strategies, not periodic efforts carried out so report cards can be issued to council and work units at the end of each fiscal year.

In summary

We have just reviewed briefly a six phase process of enquiry, reflection, and action designed to help you and your colleagues install a Total Quality Maintenance (TQMn) programme in your local authority.

Total Quality Maintenance (TQMn) Phases

1. Reconnaissance and fact finding
2. Problem finding and analysis
3. Purpose and commitments the -- *effectiveness factors*
4. Strategy planning and resource mobilisation
5. Organisation and implementation the -- *efficiency factors*
6. Evaluation and quality assurance

If all of these phases are pursued with diligence and commitment, we are confident that you and your colleagues will be successful in making O&M an investment priority for council and the community.

IMPROVED ROADS FOR HARGHITA COUNTY

Case Study

Improved Roads for Harghita County

Why this case?

During the post-training critique, participants at a TQMn workshop in Romania recommended the inclusion of a case study based on an actual TQMn workshop. They felt that public officials, who may be unfamiliar with interactive training techniques and team learning, could benefit from a preview of what they would be experiencing in such a workshop. We have, therefore, developed this case based on the workshop experience of five local government officials from Miercurea Ciuc Municipality and Harghita County in Central Romania. As you will see, these officials worked as a team during the workshop on a plan to resolve a serious O&M problem facing their county. As you read the case, we hope you will visualise yourself in a similar setting, a workshop participant engaged with colleagues in analysing facts, investigating options, and finding a solution to one of the urgent O&M problems facing your local government.

What is a TQMn workshop?

The management of operation and maintenance functions (O&M) is a problem in local governments throughout the world. The maintenance of fixed assets (roads, water and sewer systems, drainage facilities, etc.) often is neglected once they are constructed or acquired. The consequences of this neglect are jeopardising major capital investments, soaring expenses for maintenance, and the imposition of an unfair cost burden on future taxpayers when debt service outlasts the life of the asset.

Recognition of the malaise that characterises most O&M systems in local governments led the United Nations Centre for Human Settlements (Habitat) to develop these training materials. The training is designed to help local government managers take a more rigorous and systematic approach to the management of their O&M functions. At the core of the training is a six-day residential workshop on total quality maintenance (TQMn).

The first field application of these materials was conducted in Tusnad, Romania, 18-24 September 1994. The six day workshop was a collaborative effort by the County of Harghita, the Government of Romania Ministry of Public Works and Regional Planning and the International Development Institute for Organisation and Management (IDIOM). The workshop was supported financially by the Institute for Local Government and Public Service (affiliated with the Open Society Institute) and the Soros Foundation of Romania.

Eighteen officials representing ten local government organisations in Romania participated in the workshop. Working in four teams, these officials were given the task to analyse either their local water or road operation and maintenance programmes and to develop action plans for improving O&M performance. Team membership tended to represent the inter-organisational realities of local service delivery in Romania (where judets and city councils as well as autonomous regias are involved in funding and operation). By working in teams, participants began to see the value of working together and the opportunities to be gained by inter-organisational cooperation. The resulting action plans reflect these complex relationships.

As preparation for the workshop, participants were asked to bring with them the results of a pre-workshop assignment. This meant several hours of data collection and reflection on one important area of their O&M responsibilities. Detailed forms and instructions were provided well in advance of the workshop to help give structure and uniformity to the data gathering task.

In addition to meeting the learning needs of local officials, a goal of the workshop was to provide a trainer-training experience. Men and women with training backgrounds were assembled and assigned to serve the various public official teams as facilitators. These trainers were expected to be responsible for organising and conducting future Total Quality Maintenance (TQMn) workshops.

The Miercurea Ciuc Team

Participants at the Tusnad workshop were grouped into four inter-organisational teams, and the teams were given names

reflective of their common venues (Campina, Craiova, Miercurea Ciuc, and Odorheiu Secuiesc). The workshop was conducted largely in English by Dr. Fred Fisher and Mr. David W. Tees (authors of the training materials) with full support from Ms. Ana Vasilache, co-trainer, and facilitators for the four teams.

The Miercurea Ciuc team consisted of five members. Two were local councillors from Miercurea Ciuc. A third was a councillor from the County of Harghita, and the fourth, a woman, was the County of Harghita Administrator for Local Roads and Bridges. Rounding out the team was an engineer who was a former county technical officer and currently is the owner of a water and sewer consulting business. Claudiu, who had participated in a trainer training programme under European Community sponsorship, was the team facilitator.

Arrival

Workshop participants arrived in Tusnad late on Sunday afternoon. They were greeted at 1700 hours in the main meeting room by the co-trainers and facilitators who had arrived earlier in the day for a pre-workshop planning session. After brief introductions, participants were asked to go to their respective team meeting rooms and take part in a "get acquainted" activity. Each team was instructed to draw a picture of the geographic area its members represented and where each member of the team fitted into the picture. Originality was encouraged. Each team was given about one hour to draw its picture on large sheets of newsprint paper. After doing this, the four teams reconvened. Each team's picture was displayed and described by one of its members with enthusiasm and good humour. The ice was broken. The four groups of individuals had functioned as teams for the first time. Participants adjourned to the Hotel Ciucas dining room for their first meal together and high expectations for the opening day of the workshop.

Workshop on Total Quality Maintenance Harghita County, Romania

<p style="text-align: center;">Sunday, 18 September Arrival, Introductions and Team Development Exercise 5 pm - 7.30 pm</p>
<p style="text-align: center;">Monday, 19 September Focus on O&M Problem Finding & Definition 8 am - 5 pm</p>
<p style="text-align: center;">Tuesday, 20 September Focus on O&M Problem Analysis 8 am - 5 pm</p>
<p style="text-align: center;">Wednesday, 21 September Focus on Goals, Objectives & Stakeholder Identification 8 am - 5 pm</p>
<p style="text-align: center;">Thursday, 22 September Focus on Strategy Planning & Resource Mobilisation 8 am - 5 pm</p>
<p style="text-align: center;">Friday, 23 September Focus on Organisation & Implementation 8 am - 5 pm</p>
<p style="text-align: center;">Saturday, 24 September Back-home Application Planning & Departure 8 am - 12 noon</p>

Focus on O&M Problem Finding and Selection

Monday (Day One)

The first day began with a briefing for participants on workshop goals, expectations, and activities and a presentation on

the TQMn approach to O&M. From mid-morning until mid-afternoon, participants, working in teams, discussed with one another the local O&M situation about which they had collected information in the pre-workshop assignment. Each team was told to be prepared by mid-afternoon to make a presentation on its situation.

Seated around a conference table in their designated work area with their pre-work assignments spread out in front of them, members of the Miercurea Ciuc team, began their discussions. Ms. Berta Benedek (known as Babi), Harghita County's Administrator for Local Roads and Bridges, took the lead. This was appropriate since the team's efforts would be directed to an examination of what to do about deterioration of an ageing system of local roads in Miercurea Ciuc and other areas of Harghita County. A description of the problem was printed with a felt-tip marker on a sheet of newsprint for reporting at the plenary session.

Day one ended with presentations by each of the four teams of local government officials, including the Miercurea Ciuc team, on the problems selected for study during the workshop. As was to be the practice throughout the week, teams reported using sheets of newsprint with large lettering that could be read easily by participants seated around the walls of the main meeting room. The newsprint sheets were taped to the front wall of the meeting room with masking tape.

We have included below, as background, some of the information on the local road situation in Harghita County as described by Ms. Benedek for her team colleagues from research done during the workshop pre-work assignment.

Harghita County (see map) is responsible for the development and maintenance of a local road system for residents of Miercurea Ciuc, Odorheiu Secuiesc, Gheorgheni, Borsec, Cristuru Secuiesc, other county villages and towns and rural areas of the county. The road system consists of about 1000 kilometers of roads of which about eighty-five per cent are of asphalt or macadam construction and the rest unpaved. Twenty-five per cent of the county's annual allocation from the Parliament in Bucharest is spent on road construction and maintenance. Nevertheless, 94 per cent of the county's improved roads are deteriorated to the point of being almost unusable. Owing to inadequate materials, undermining of base material by water infiltration, and the impact of increasingly heavy truck traffic, asphalt roads have an average life span of less than eight years.

Maintenance and rehabilitation of roads in Harghita County is performed during the warm summer months by a low paid, unskilled county workforce using out-of-date and unreliable equipment. The seasonal nature of road construction and maintenance does not afford steady employment for county road workers, and wage scales are poor. As might be expected, worker morale is low and turnover is high. With the exception of eleven new trucks, road building machines (graders bulldozers, rollers, asphalt machines and concrete mixers) are old and worn out. Needed equipment is often out of service for repair thus adding to O&M costs and delaying the completion of road projects.

A shift is taking place gradually in Harghita County from the use of county forces to contract road construction. Private firms with good equipment and higher pay scales generally are better equipped than county forces to stay on schedule and meet design standards set by the Ministry of Transportation. The County Council, however, is skeptical of private contractors. There is fear among council members that the county will not get its money's worth.



Focus on O&M Problem Analysis Tuesday (Day Two)

Reconvening in the main meeting room, workshop participants were given a briefing on "problem analysis" by the facilitators. The intent of this presentation was to help participants find "real" problems by learning how to examine their

initial problem statements with a more critical eye. The facilitators pointed out the common tendency of many problem solvers to confuse "real" problems with the *symptoms* they produce (our problem is the citizens are not happy with the service we give them). Another is the tendency of problem solvers to confuse the "real" problem with a *solution* or the situation that would exist if there was no problem (our problem is customers should have uninterrupted water service 24 hours a day).

The briefing concluded with instructions for the four teams to "test" their problems in a number of ways. Before moving on to analysis, participants in each team were asked to apply the "three C's test" to the problem statement:

- it *clear*? (everyone agrees on its meaning)
- Is it *concise*? (stated in simple, straightforward language)
- Is it *complete*? (nothing important has been left out)

Then the four teams were told to ask analytical questions of their problems as a way of getting better acquainted with them:

- What is the "real" problem?
- What is causing the problem?
- When and where is it a problem?
- For whom is it a problem?
- When should this problem be solved?
- What are the consequences of not solving it?

Finally, teams were given a set of criteria and a scoring system for helping them reach a conclusive "go/no go" decision on moving ahead with problem solving. At the conclusion of the briefing, the four teams went to their respective work areas to begin problem analysis guided by the facilitator's instructions.

Around mid-afternoon, members of the four teams reconvened in plenary session to report on the results of their problem analysis activities. A portion of the report of the Miercurea Ciuc team is shown on the next page.

Following presentations by each of the teams, the workshop was adjourned for the day.

The Road Problem in Miercurea Ciuc

What is the "real" problem?

The technical condition of the roads is far below standards of the Ministry of Transportation

Why is it a problem?

Failure to appropriate money for road reconstruction and to implement continuous road maintenance programme. Roads today are designed for 1970 traffic loads despite the fact that average traffic volumes are up to 300% greater.

When is it a problem?

The problem is all year around and affects 93% of the local roads in Harghita County.

What will happen if nothing is done?

- Traffic congestion and delay will increase
- There will be more traffic accidents
- Some settlements will be isolated
- The discontent of auto users will rise
- Tourism and economic development will be reduced
- There will be increased user expense for auto repairs
- There will be more polluting of the environment.

What factors contribute to the problem?

- High road degradation due to cold and ice removal treatment
- Rise in the number of heavy vehicles
- Old, poorly maintained equipment for road maintenance
- Total control of the County Roads Administration Division over all local road design, construction and maintenance
- Impossibility of expense planning due to very late approval of the roads budget.

**Focus on Goals, Objectives and Stakeholder Identification
Wednesday (Day Three)**

Much like the preceding day, Day Three began in plenary session, all four groups together, to hear a presentation by the facilitators on setting goals for O&M and doing a stakeholder analysis. The intent of the presentation was to shift the thinking of participants from the *problem* (what exists now that is unsatisfactory and requires corrective action) to the *goal* (what will exist three to five years from now when the problem has been solved). By introducing the concept of *stakeholders*, the facilitators hoped to encourage participants to identify important groups, organisations and individuals whose assistance and commitment would be needed to attain each team's essential O&M goal.

The four teams spent most of the morning constructing goal statements suitable for their respective O&M problems and identifying key stakeholders. Before the lunch break, participants reconvened in a plenary session for each team to report. When its turn arrived, the Miercurea Ciuc team presented the following as its O&M goal:

Rehabilitate or reconstruct 40% of the local roads in Harghita County within five years.

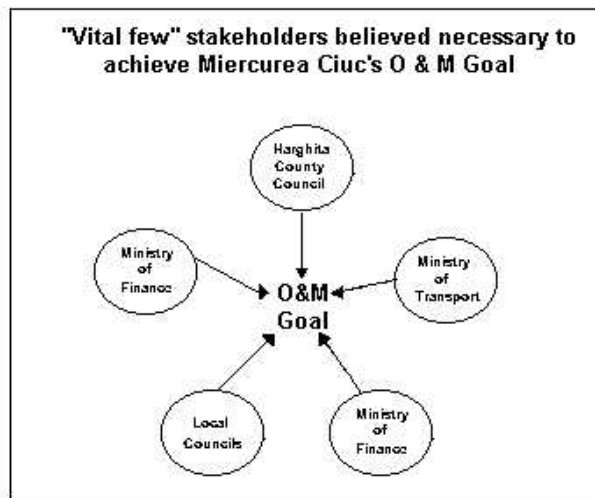
Each of the teams, at the conclusion of its presentation, was asked how it had arrived at its choice stakeholders. To have a little fun with the group, the Miercurea Ciuc team said: "We choose the town councils as a major stakeholder group because we want them to vote warmer weather for us this winter." "We also named the Ministry of Transportation as a major stakeholder because we hope it will lower its standards so we will not have to widen our roads."

After some laughter, more serious explanations were offered by the Miercurea Ciuc team for choosing its "vital few" stakeholders. The team had looked at opportunities to strengthen project implementation by involving key stakeholders. For example, team members believed that: (1) the collaboration of policy makers at various levels of government might help to speed up the budget approval process and (2) the cooperation of transport agencies in setting and controlling vehicle weight limits would help to lessen wear and tear on local roads.

The five stakeholders identified by the Miercurea Ciuc team as the "vital few," those whose support and commitment would be necessary for the accomplishment of its O&M goal, are shown in the following diagram.

Following lunch, participants in plenary session were briefed by the facilitators on how to prepare goal-achievement objectives. Participants were told that objectives are what they plan to achieve in the next 12 months to lead them closer to the attainment of their goal. The facilitators presented examples of typical O&M objectives used by local governments to help participants distinguish between goals, objectives, strategies and programmes.

When the facilitators were satisfied that the participants were reasonably familiar with what represents an O&M objective, teams were sent to their respective work areas to develop their own short-term objectives. Before leaving, the facilitators re-emphasised that the objectives prepared by each team should be consistent with and contribute to the achievement of the team's chosen three to five year O&M goal.



After a couple of hours of independent work, the teams reassembled late in the afternoon in plenary session to report their results. The objectives developed by the Miercurea Ciuc team were consistent with its stated O&M goal-rehabilitate *or reconstruct 40% of the local roads in Harghita County within five years*. One of these objectives was:

To develop project designs in the next 12 months for the reconstruction of 70 kilometers of roads in Harghita County consistent with standards of the Ministry of Transportation.

When all of the teams had reported and been given a chance to comment on each other's work, the workshop was adjourned for the day.

Focus on Strategy, Planning and Resource Mobilisation Thursday (Day Four)

The focus of day four in the workshop was to prepare each of the teams to decide how to go about achieving the O&M objective identified on Wednesday. The next step, the facilitators said, was for each team to use a method called "brainstorming" to generate as many ideas as possible for attaining one of its O&M objectives. After a short description of brainstorming, participants were directed to look in their workbooks for a simple rating scale. The scale, according to the facilitators, was to be used by each team to rank or prioritise their list of ideas against objective-attainment criteria. The intent of using the rating system was to identify the one idea or "strategy" with the best overall chance of reaching the team's objective.

Once again, each team was instructed to work for a couple of hours on strategy identification using the methods suggested by the facilitators. The results were to be reported on newsprint in a plenary session later that morning.

The Miercurea Ciuc team reached a decision quickly on a workable strategy for road reconstruction design. The brainstorming process suggested by the facilitators helped the team to identify alternatives for design preparation. Among the alternatives considered by the team to carry out the design task were:

- the county with its own resources;
- specialised state-owned companies located in the county;
- specialised private companies located in the county;
- specialised companies from elsewhere in the country; or
- specialised companies from abroad.

The strategy finally selected by the team from the various possibilities is described below.

The award of a project design contract within 12 months for the reconstruction of 70 kilometres of designated county

roads, the contract to be awarded to the private or state-owned firm specialised in road design that submits the lowest bid that does not exceed 500 million lei.

With the presentation of the strategy selected by each team to obtain its intended O&M objective, participants adjourned for lunch. On returning from lunch, participants were introduced to "action planning," a vital transition from planning to implementation. Action planning is the process of identifying and sequencing the many tasks that must be performed to carry out a strategy and the necessary resources (people, equipment, facilities, money) to carry out these tasks. Resource mobilisation, an important aspect of action planning, was stressed by the facilitators as a way of testing the feasibility of the plan. As pointed out by the facilitators, if the needed resources are not available or cannot be obtained, then the team may have to make adjustments to its plan.

The workshop teams went to their work areas to carry out two tasks. The first was to prepare action plans for carrying out the strategy developed during the morning session. The second was to analyse resource needs using the "Resource Mobilisation Checklist" in the workbooks.

Later that afternoon, the teams convened in plenary session to present the results of their work. A portion of the action plan presented by the Miercurea Ciuc team is shown below.

The fourth day ended with the presentation and discussion of action plans by each team.

Action Plan for Preparing Project Design for reconstructing 70 km of Roads in Harghita County, Sept. 1994			
Task	Responsibility	Duration	Due Date
✓Development of a plan for designing the project	County Roads Division; County Council	5 days	Jan 1995
✓Defining the project design specifications	County Roads Division; County Council (Tech)	10 days	Jan 1995
✓Compiling detailed cost data on the project	County Roads Division; Local Councils; others	40 days	Mar 1995
✓Deciding on the bid process to be used	County Roads Division; Local Councils (Tech)	35 days	May 1995
✓Selection of firms to be invited to submit bids	County bid committee; others	7 days	May 1995
✓Advertising for bids	Contractors; the County Roads Division	75 days	Jul 1995
✓Review of bids submitted by road designers	County bid committee; utility companies	49 days	Sep 1995
✓Submission of bids for Finance Ministry review	Finance Minister/Inter-ministerial Committee	15 days	Oct 1995
✓Final decision on bidder by the cent. Government	Parliament	60 days	Dec 1995
✓Award of contract to begin design work	County Council; selected design firm	15 days	Dec 1995

Focus on Organisation and Implementation

Friday (Day Five)

Participants for the O&M workshop assembled in plenary session for their final full day of training. The morning session began with a presentation by the facilitators on work habits-rules, regulations, procedures and customs-that govern what an organisation does, and how. It was pointed out by the facilitators that work habits, whether established by law or custom, exist to protect the status quo. As a result, they can hinder changes, even those designed to achieve important improvement goals and objectives. After a lively discussion, participants compiled newsprint lists of procedures, regulations and customs that have hindered them in the past or are hindering them now in carrying out their responsibilities.

The facilitators then made a short presentation on alternative ways to alleviate these obstacles and on alternative ways to structure the O&M function. The main point made by the facilitators was that traditional hierarchical and bureaucratic

models of organisation are beginning to give way to other, more flexible forms. Using the focus on teams during the O&M workshop as an example, the facilitators pointed out the power of teamwork and suggested that structuring O&M functions to include cross-functional teams might improve the speed and quality of decision making.

With the time remaining during the morning session and on into early afternoon, participants, once again working in teams, were asked to complete two assignments:

1. List obstacles to the implementation of your action plan (e.g., cumbersome rules or work practices that need to be changed). Then develop a strategy for modifying or abolishing each obstacle using brainstorming or some other method of group problem solving.
2. Draw a sketch to illustrate the way you are organised for O&M functions. Then draw a second sketch, this time to illustrate how you would like your O&M functions to be organised. Be prepared to explain your reasoning for the change.

When the teams reconvened in plenary session around mid-afternoon, each team presented its results to other workshop participants.

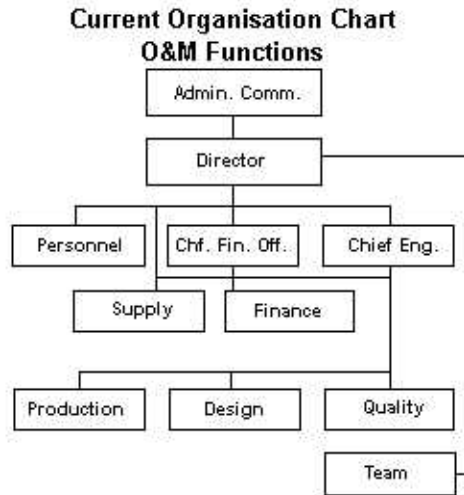
In response to the first assignment, the Miercurea Ciuc team identified three obstacles to road construction and three proposals for removing with them.

Obstacles	Solutions
1. Laws that impose restrictive and out-of-date building and design requirements and limit the powers of local governments to acquire necessary road rights-of-way.	1. Prepare legal language to make these laws less restrictive and ask friendly legislators in the National Parliament to introduce them as amendments to the law.
2. Information flows up and down in organisations but does not flow freely among departments causing unnecessary delay in performing many O&M tasks.	2. Experiment with cross-functional teams and other non-conventional but useful methods to encourage greater, faster sharing of information among work units.
3. Most councillors have no training in governance and have nothing in their work backgrounds to prepare them for the challenges of local public office.	3. Councillors should be required by law to receive training in governance soon after being elected to local public office.

To the second assignment, the Miercurea Ciuc presented two organisation charts. The first was a sketch showing the way the team saw its O&M functions organised now. The second was a sketch of the way the team would like to see its O&M functions organised. The two sketches, presented on newsprint, are shown on the next page.

Before adjourning, workshop participants were given workshop evaluation forms with instructions to complete and return them before leaving for home after the concluding session on Saturday morning. Participants were also invited to attend a farewell dinner and other festivities planned that evening in their honour at a colourful restaurant near the hotel.

Miercurea Ciuc Team:



Miercurea Ciuc Team:



Back-home Planning, Application and Departure
Saturday (Day Six-The Final Day)

In a final plenary session, workshop participants received some advice from the facilitators on how to measure the impact of their strategies on O&M goal achievement. The technique is sometimes called "benchmarking." This is nothing more than creating quality standards (benchmarks) against which the actual performance of action planning tasks can be compared.

Working in teams, participants were asked to establish several benchmarks or quality standards that would be useful to their team in measuring action plan performance. The teams returned to plenary session in about 90 minutes to report results. Three benchmarks were established by the Miercurea Ciuc team for use with the action plan team members had adopted on Thursday.

- | | |
|----|--|
| 1. | Road design specifications equal or exceed published standards of the Ministry of Transportation. |
| 2. | Cost estimates for the design project do not vary more than five percent from the lowest qualifying bid. |

3. No task included in the action plan exceeds the estimated time for performance by more than 10 percent.

The benchmarking activity ended with a suggestion from the facilitators for each team to take its benchmarks seriously and to offer incentives or rewards for those who consistently reach established benchmarks and withhold rewards for those who do not.

Departure

The workshop closed with words of praise from the facilitators for the individual effort and teamwork of the various participants and their team facilitators.