



# **Building Local Government Capacity for Rural Infrastructure Works**

**Geoff Edmonds  
Bjørn Johannessen**



**International Labour Organisation**

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# Introduction

**T**here is a general trend worldwide to decentralise government functions. This is generally motivated by political imperatives, but also has a sound basis in the economic rationale of improving the efficiency of the allocation of resources and the responsiveness of policy making. It is also seen as a more effective means to tackle poverty reduction. In addition there are some key considerations in development terms, these are:

- ❖ Development should not be a top down process. Instead it should involve the users



### Forms of Decentralisation

**Deconcentration**, often referred to as administrative decentralisation, describes the transfer of specific functions to peripheral agencies of the same central government institutions (i.e. district offices), without the transfer of the authority away from the central government with the effect that local representation and involvement remains limited.

**Delegation** is the assignment of certain functions to other semi-autonomous or parastatal institutions, which execute them independently, without owing direct responsibility to either local or sectoral, central government institutions.

**Devolution** refers to the transfer of specific functions to local authorities together with the legal basis and required means and capacity. Decentralised agencies in this context would normally have little reliance on the central government, except in the form of technical and managerial guidelines and procedures, however, leaving selection and prioritisation of works to be decided at local level.

Finally, **privatisation** refers to a complete and final transfer of a package of government services to private organisations. Privatisation is often a measure which is combined with one of the other forms of decentralisation, by limiting its scope to certain task or functions, i.e. technical designs and works implementation.

- from the very start of works identification to maintenance and operation;
- ❖ Centralised planning and allocation of resources leads to only a limited flow of resources to the local level;
- ❖ Centralised delivery of programmes has not provided a response to local needs and have been out of touch with local needs.

Most governments have or are being decentralised. The degree and form of such decentralisation varies from one country to another. However, one of the main principals and characteristics is that the responsibility for the delivery of government services is given to the lowest level of government that can perform such functions effectively and efficiently.

Common sense would suggest that providing the authority and responsibility to organisations that are closer to the eventual beneficiaries would result in services being provided that are more related to people's needs and that emphasise the use of local skills and resources. However, studies on the decentralisation process have highlighted several constraints to effective decentralisation:

- ❖ decentralisation is a dynamic process rather than any fixed form of institutional arrangement and its characteristics are subject to change depending on the government in power and the popular trends,
- ❖ the difficulty of matching authority and accountability by clearly defining who, and which levels of government, is responsible for what,
- ❖ insufficient capacity at the designated level of decentralisation,
- ❖ replacing centralised political interference with a lack of transparency at the local level.

A word of caution is also necessary here. Decentralised governance may be more likely to adopt pro-poor policies. However, local elites can be very successful in taking undue advantage from directing expenditures and taxation policies. There is as yet little hard evidence to suggest that



there is a systematic relationship between decentralisation, economic development and poverty reduction. Nevertheless, there is the potential, and some lessons have already been learned as to how decentralisation can provide the effective mechanisms for poverty targeting and the more rational use of resources for the provision of sustainable rural infrastructure services.

The major constraints to achieving this potential are often recognised as being:

- ❖ inadequate financial management and control systems,
- ❖ inadequate implementation capacity at local level,
- ❖ unfamiliarity with proactive, participatory planning systems,
- ❖ inappropriate procurement and contract administration

- ◊ procedures, and
- ◊ inadequate resources for and limited understanding of effective maintenance procedures.

### **Tools Needed at Local Level**

One of the most important tasks of local government authorities is to provide and maintain rural infrastructure. There are a number of key features which are required in order to effectively plan and implement such works with sustainable results. These include efficient planning tools, appropriate choice of technology, identification of correct interventions, i.e. meeting user performance requirements, adequate works supervision and management, timely and sufficient levels of funding and others. All these issues need to be considered when establishing an effective organisational structure, at the same time as ensuring the participation of the future users, local authorities and involving the local construction industry.

Experience from rural infrastructure development programmes clearly shows that there is a need for a comprehensive approach to building capacity at local level for the planning, works implementation and supervision, as well as maintenance of the created assets in order for these type of interventions to be effective and sustainable.

The following chapters describe some of the key organisational features required in order to achieve successful and sustainable outputs in large-scale public infrastructure development programmes. The issues highlighted are relevant to both long-term government investment programmes as well as for the appropriate design of specific development projects of a more limited time frame (i.e. donor funded projects).

Although there is a growing understanding among governments and key players in this sector for the importance of placing local authorities in the driver's seat, the changes required in many instances may appear ambitious and fraught with a high degree of risk. These are often the





sentiments experienced at the start of any initiative to promote the role of local government institutions. However, experience has clearly shown that if the local institutions are provided with

the means to handle new responsibilities, it is often impressive to see how well they respond to their new duties.

#### **Match Capacity Building with Programme Requirements**

Finally, it is important to emphasise that decentralisation and capacity building at local level should be closely linked to the management requirements of local government. This implies that capacity building should be carefully measured out to meet the envisaged works programmes in the immediate future. As part of this, effective decentralisation needs to be developed together with the involvement of the local construction industry.



The development activities required to reach the objec-

tives of an efficient rural infrastructure programme will require resources in the form of training, technical assistance, strengthening of management structures and development and introduction of new administrative and managerial procedures. This will demand considerable resources, and the mobilisation and use of these technical assistance resources need to be justified.

There is a need for a controlled and measured approach to these tasks. The required capacity needs to be carefully planned in relation to the envisaged works. Equally, capacity development should not be planned in relation to a single works programme in

isolation but cater for all the requirements which a local authority will need to deal with in the immediate as well as the more distant future.

This is a strong argument against the creation of temporary project implementation offices which do not form part of the permanent establishment of local government organisations. Capacity established at local level should be developed on a sustainable basis beyond the duration of individual projects. It is more effective to build up the capacity within the existing structures of local government and to the extent possible utilise the existing establishment.



# Chapter 1

## Opportunities and Challenges

### 1.1 General

Rural infrastructure development works often consist of a large number of comparatively small sub-projects dispersed over a geographically large area. It is well known that work programmes of such nature are difficult to supervise due to the demanding logistics requirements. For this reason, agencies such as road administrations, public works ministries, irrigation departments have established depots and offices at regional, provincial and district levels.



In the past, works were normally carried out through force-account operations or by engaging large-scale contractors from the capital cities, relying on staff from central government agencies for supervision and management.

Recent trends to decentralise this authority to local governments, and move from force

account operations to relying on the private sector for work execution, have led to a demand for a complete new set of management arrangements for the construction and maintenance of rural infrastructure.

Work carried out by the ILO, amongst others, to provide a comprehensive approach to capacity building for improved service delivery, indicate that the potential exists to introduce a framework for infrastructure development which both responds to the actual needs of the rural population and can be effectively administered by local officials.

A key factor in local level involvement is to ensure that the priorities and needs of the future users are well reflected in the development plans. Vesting the authority to define work programmes in local authorities, allows all types of infrastructure such as roads, clinics, schools, irrigation, water supply schemes to be

planned applying an integrated approach in which various infrastructure development initiatives are seen in relation to each other. The tools developed by the ILO for Integrated Rural Accessibility Planning (IRAP) clearly demonstrate how effective planning can be carried out at local level<sup>1</sup>.

In terms of technology choice, experience show that the implementation of rural infrastructure works can be more effectively carried out relying on locally available resources. Such resources include local materials, skills and personnel provided by local builders, smaller construction firms located in the vicinity of the works locations and local government agencies with technical and managerial skills.

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<sup>1</sup> IRAP is a multi-sectoral application of a simple planning tool designed to reinforce government thrusts on decentralisation, capacity building, people participation and the development of systems and procedures to guide local level investments in infrastructure.

Furthermore, all created infrastructure assets require a sound maintenance management system to safeguard the investments carried out during the development phase. By placing the maintenance under the supervision of local authorities, which are account-

able to the real users of the infrastructure, the concern for maintaining the created assets may be safeguarded.

The pros and cons of decentralising authority, its opportunities and challenges are summarised in the table below.

#### Opportunities:

- ✦ Enhanced potential for participation in planning and supervision from future users of the assets,
- ✦ Improved scope for multi-sectoral planning,
- ✦ Concentration on the use of local resources and local solutions,
- ✦ Development of local industries through increased market prospects,
- ✦ Local government capacity developed through increased responsibilities and work programmes,
- ✦ Greater sense of ownership since investment priorities are defined in consultation with users.

#### Challenges:

- ✦ Improve financial management systems,
- ✦ Develop implementation capacity at local level,
- ✦ Introduce proactive, participatory planning systems,
- ✦ Establish appropriate procurement and contract management procedures,
- ✦ Identify resources for and increase understanding of effective maintenance,
- ✦ Implement effective human resource development programme,
- ✦ Provide purpose oriented skills training programme,
- ✦ Secure sufficient funding, enabling local authorities to meet their new responsibilities.

#### Strengths:

- ✦ Decisions taken at local level by user representatives,
- ✦ Funds used for locally defined needs,
- ✦ Increased opportunity for community involvement,
- ✦ Decentralised supervision allowing for regular inspection of work sites and improved progress monitoring,
- ✦ User involvement in monitoring of performance.

#### Weaknesses:

- ✦ Lack of clarity of decentralisation - often related to central agencies attempting to retain authority,
- ✦ Vested interest from local politicians,
- ✦ Lack of capacity, in terms of technical and managerial skills,
- ✦ Lack of qualified staff, for work design and supervision, accounting, overall planning and management,
- ✦ Lack of funding due to poor local taxation resource base and limited funds being allocated by central authorities.

## 1.2 Opportunities

Decentralisation of authority has become an increasingly important issue in rural development programmes in recent years. This is most clearly seen in the number of community participation programmes where the local villages become the central focus. The reasons for selecting the lowest levels of administration is obviously to create the highest degree of involvement and commitment from the end users.

While local participation can be secured through different forms and mechanisms at the various stages of the project cycle, there are a number of related opportunities which can be exploited in order to secure overall development objectives on a sustainable basis.

### ***(i) Integrated Planning Approach***

When rural infrastructure is planned as part of a central government programme, too often this is done mainly in relation to the development of the sub-sector alone. Vesting the authority to define work programmes in local authorities allows all types of infrastructure, such as roads, clinics, schools, irrigation, water supply schemes, to be planned in relation to the implementation of other

infrastructure developments, and may achieve a better reflection of the real demands of the local communities.

Involving local communities in the decision making process can be extended to all stages of the development process. In addition to the identification and selection process, local involvement during the construction and eventually during the operation and maintenance stages, may result in improved transparency in management of funds.

Local participation in the final stage of maintenance and operation of the created assets may provide the only feasible solution to sustaining the infrastructure investments.

### ***(ii) Funds Used for Locally Defined Problems***

Funds for rural infrastructure allocated by central agencies tend to be spent in accordance with defined targets or norms in a particular sector. Moreover the level of funding is defined in accordance with the central line agencies' budgets. When funds are disbursed at the local level they (i) relate much more to actual needs and (ii) budget allocations are seen in relation to the overall budget and works programme of the local administration.

**(iii) Greater Opportunity for Community Involvement**

Since the local authority is closer to the communities, there is the potential for a more significant interaction with the communities. On the one hand, the local authority is able to more effectively promote community involvement, and on the other hand, the communities can more easily demand such involvement. Beneficiaries can have a greater involvement and influence on the planning, technical choices, methods of implementation, operation and maintenance of the project.

In sectors such as water supply, sanitation and irrigation, direct community involvement through user groups is essential for the effective maintenance and operation of the infrastructure assets. However, for this to take place in an effective and timely manner, there is often a demand for at least some limited external assistance. This may be in the form of financial or technical assistance or in terms of facilitating the formation or sustaining the mobilisation of community resources to maintain and operate. Local government organisations equipped with the required resources are in a well placed position to provide such backup services.

**(iv) Decentralised Supervision**

Decentralisation is particularly

important in relation to rural infrastructure works, for which the management resources of central government departments are seldom sufficient to provide proper supervision.

Central agencies are often fraught with similar capacity problems as local authorities, such as lack of staff, transport and other resources to be able to cover the management and supervision of a rural infrastructure works programme. This problem is made worse by the long traveling distances from their central and regional offices to the location of the work sites.

**(v) User Involvement in Monitoring**

Genuine decentralisation enables local organisations to “exert pressure” and therefore to defend their projects better because, at that level, the negotiating partners and the needs of the population are better known. The main issue here is that local authorities are held responsible to the users for their actions. When works are managed by personnel who report to a central agency, this pressure from the local population is diluted, since central agencies and their staff take their orders from superiors situated in the capital or provincial headquarters - and are not directly accountable to the end users of the created assets.

## 1.3 Community Participation

The importance of involving local communities in rural infrastructure programmes has received a growing acceptance - the main reason being that the sustainability of the infrastructure investments can only be secured by involving the users from the very start when works priorities are identified. Local participation can be secured through various mechanisms, depending on the type of works, and can take different forms at the various stages of project implementation.

The classical approach to secure local participation in rural infrastructure development has been through a hierarchy of development committees at village, district and provincial levels. These organisations can secure the appropriate representation of both political and technical bodies as well as particular user groups. In the past, these institutions have played a central role in the identification and selection of individual development projects, which form the basis for the infrastructure development programmes of the district and provincial authorities.

A major short-coming with this arrangement has been the lack of clear criteria and planning guidelines, with the result that



the development committees have often produced wish lists with limited cross-sectoral integration. For this reason, the introduction of integrated rural accessibility planning (IRAP) has provided a significant improvement in the quality of local level planning.<sup>2</sup>

A second issue is that development committees are often only involved in the initial stages of the development cycle, i.e. during the identification and selection stages. In most cases, these committees do not play any significant role during the works implementation, maintenance and operation stages.

Community involvement in rural infrastructure works covers a wide spectre of participatory mechanisms. The most common arrangements are:

<sup>2</sup> Ref. Chapter 2 Local Level Infrastructure Planning



- ❖ involving the communities in the formulation of development plans and budgets,
- ❖ local communities providing some or all resources required for the works in the form of providing their own labour, tools, materials and cash.
- ❖ local communities or user groups take charge of the works implementation, either directly by organising themselves into work groups or by engaging a local contractor,
- ❖ local communities or specific groups are contracted to carry out works under the supervision of local government authorities,
- ❖ local communities monitor the works carried out by local government and private contractors.

The appropriate form of community participation depends on the type of works being carried out, and the solutions found to be effective in one sector may not necessarily be appropriate to apply in other sectors. However, as the main users of the infrastructure facilities, it is important that they are involved as part of the management process from the identification stage throughout to the maintenance and operation stages.

## 1.4 Challenges

Although there are clear advantages in involving the local communities to the extent possible, there are a number of issues which need to be addressed in a planned and organised manner. It is too easy to discard the attempts to decentralise on the basis of current shortcomings of local administrations. Rather than using such issues as an excuse for not attempting to decentralise authority, these issues should be regarded as challenges and addressed seriously through the introduction of new organisational structures, proper planning and implementation procedures and training.

Local level authority needs to be clearly divided between the appropriate parties and institutions best equipped to deal with the various responsibilities. Development committees



and similar institutions, representing the users of the infrastructure, need to be involved in the identification

and prioritisation of the works. Public works programmes fall under the authority of the local government administrations. Within these administrations, technical agencies are responsible for the design and supervision of the works. Finally, but equally important, it is important to involve the local construction industry in the execution of the works.

### Lack of Clarity of Decentralisation

Decentralisation should mean the devolution of both responsibility and authority to a local body. This applies to technical, managerial and financial issues. Often responsibility is decentralised, but full authority is not. Moreover, the lack of devolution of financial authority results in local authorities having greater responsibilities without the financial means to fulfill that responsibility.

Often, the result of efforts on decentralisation merely leads to deconcentration. Responsibility is devolved to regional offices of a central authority without the involvement of the attendant authority. Moreover, the funds still remain in the control of the central agencies. The problem with such implementation arrangements is that the authority is then

vested in a body which does not report to the real users of the assets, but instead reports to central government bodies which really have no genuine interest in the operation, maintenance and usage of the infrastructure assets.

### **Political Interference**

When authority is given to local authorities it is often argued that there is the potential for greater interference from local politicians in the way that the funds are spent. For this reason, it is important that (i) clear planning procedures and works prioritisation criteria are properly instituted, and that (ii) community participation is instituted as part of the planning process.

It is important to bear in mind that local participation in planning also includes the involvement of local politicians. Rather than regarding this as a potential negative

impact, the interest of the local politicians should be channelled into a structured planning system in which transparency and decision making is secured in an orderly manner. In achieving this, the power and influence of local politicians can be utilised in favour of local level infrastructure development programmes, encouraging them to use their power and influence to lobby for further funding and support to the local authorities.

### **Lack of Capacity**

This is an issue too often used as an argument against involving local authorities, instead of treating it as a challenge and dealing with the capacity development requirements it warrants. Whilst there is often a misconception regarding the level of capacity within local authorities, it is in most cases proven successful to vest greater responsibility with local managers, administrators, planners and engineers. This in turn means that they must have the means to be able to respond.

Lack of capacity is often cited as the reason for not decentralising. Equally, local authorities often underestimate what is involved in taking on this responsibility. With a comprehensive approach to institutional development and training, the shortcomings of local capacity can be rectified.



## 1.5 Appropriate Levels of Capacity

It is also important to ensure that authority is vested at the appropriate levels of local government. The following figure lists some key tasks and responsibilities, which need to be clearly allocated at various levels of the hierarchy within the relevant authorities at national, provincial, district and commune level. As seen from the table below, there are a number of activities which need to be dealt with at local level, and equally there are other tasks which are more appropriately addressed by central authorities.

The division of responsibilities shown in this table varies from one country to another and

depends on the type of works and the conditions in which the works are carried out. Despite this, there are certain trends which can be found in most rural infrastructure development programmes.

### Data Collection

Obviously, all data collection, as regards to future performance requirements of the improved assets, must be carried out at district and village level. These levels of government will also be in the best position to locate and collect the relevant data as well as placing this information in the context of the overall development plans of the communities. Planning is carried out at all levels,

Level	National	Provincial	District	Commune
Data Collection			✓	✓
Planning	✓	✓	✓	✓
Budgeting	✓	✓	✓	
Plan approval	✓	✓	✓	
Budget approval	✓	✓	✓	
Source of funds	✓	✓	✓	
Standard setting	✓			
Authority to classify	✓	✓	✓	
Works Implementation		✓	✓	
Supervision		✓	✓	
Maintenance			✓	
Award contracts		✓	✓	
Monitoring	✓	✓	✓	✓
Accounting		✓	✓	

however, it is important that it also includes the end users at commune and village level, thereby securing the concerns and priorities of the actual end users of the infrastructure assets.

### **Budgeting and Planning**

Budgeting and planning approvals are integral parts of the programming process and therefore needs to involve the same levels of authority as the planning exercise. Depending on the size of the local government institutions and the population covered, governments must decide to vest financial management authority at the appropriate levels. In countries where commune administrations cover a very small geographical area and limited population, financing and budgeting capacity is placed at a higher level i.e. district level. Other places, with denser populations or where communes cover a large area, it would be more appropriate to vest such authority with the communes. Equally, the authority to collect rev-

enue from local taxes, user fees, licences, etc. will indicate the appropriate level of authority and responsibilities for infrastructure improvement and maintenance works.

When the district or commune authorities generate their own income, they also have to carry out the final approval of how the funds are utilised. When funds are received from higher levels in this hierarchy, it is normally required to obtain some form of general approval of annual work programmes after they have been finalised and agreed upon by local authorities. In this context, is important that the central authorities approve the overall programmes submitted by local government against a set of transparent and clear implementation regulations and instructions. This does normally not involve any changes to the priorities made at local level.

### **Standard Setting**

Standard setting is a task commonly vested with central authorities. The main reason



for this is to avoid duplication of works as well as utilising a centrally positioned institution to collect and disseminate examples of good practices and technical solutions. Equally, by relying on one national research organisation/ laboratory, it may be possible to mobilise sufficient funding to address common technical issues in a nationwide programme. Despite this, it is important that the standards are developed on the basis of the initial experience, which is harvested at local level where the physical works take place.

#### **Authority to Classify**

Authority to classify is directly related to the ownership of the completed assets and more importantly the maintenance and operation responsibilities. As a general rule, it is important to respect the fact that perceived responsibilities for maintenance are very closely linked to the understanding of ownership.

The adjacent box describes the common features of a road classification system. Similar arrangements can be found for other types of infrastructure such as markets, schools, health facilities and water supply.

What is important in relation to sustainable provision of all these types of services, is to establish effective mecha-



nisms and identify reliable sources of funding, allowing the various levels of government to effectively operate and maintain their assets. It would appear unreasonable to construct or improve some form of infrastructure without having clarified the ownership of the assets - and thus agreeing to who is in charge of the maintenance.

#### **Implementation and Supervision Authority**

With the increased involvement of the private construction industry, the crucial question is related to who supervises and manages the contractors engaged for carrying out the works. This also includes the issue of authority to award contracts, and more importantly who inspects and pays the contractors for completed works.

This is where the strongest sentiments are found. It also

### Classification of Roads

The ownership and responsibility for the public road network is in most countries defined by law through a national road act with ministerial regulations and directives derived from this legislation. In addition to the road act, there may be legal provisions related to rural and municipal roads found in laws pertaining to local government authorities. This, legal framework normally spells out the division of responsibility for the operation and maintenance of the various types of roads in the country.

Road classifications normally distinguish between national, provincial, district and village/commune roads. In addition, roads can be classified as municipal roads and streets, roads in national parks and forest reserves, military roads, private roads, etc. What is important to note is that the classification primarily relates to their function and to who is in charge of these roads-maintaining and not the technical standards applied.

Classification of national roads is commonly vested with the national assembly or devolved to a central road works authority or public works department. Equally, provincial roads often sort under the same overall category, only forming the secondary part of the national road network.

"Rural roads" is a general reference to the remaining part of the public network, covering access to district centres, communes and villages. Whilst the national and provincial road networks are the main providers of mobility, the rural road network provides the basic access for the rural population to economic and social services (i.e. markets, health, schools, information). Through recent trends of decentralisation, the responsibility for rural road improvement and maintenance has been left with local government. This also implies that local government has been given the authority to define the extent of this network.

clearly determines to what extent real decentralisation has actually taken place. Very often this issue is decided on the basis of what the local authorities can do in their current capacity rather than asking the more crucial question of whether this responsibility really needs to be placed with central authorities. In many cases, it is clear that central authorities are not in a position to handle the responsibility of rural infrastructure provision.

It is also evident that a centrally based agency will never have sufficient capacity to deal with the direct management and supervision of a geographically dispersed works programme. It would therefore be logical to look for other more appropriate institutions to handle this management task. Considering the fact that (i) most local government authorities already carry out some rural infrastructure works, (ii) they are located in close vicinity of the work sites, and (iii) they closely interact with the end users, it seems natural to increase their capacity to also deal with larger programmes.

A common feature of rural infrastructure works is that it most often consists of simple structures and standard work methods and technology. Although rural infrastructure works programmes as a whole

can be equally large as other public works schemes (i.e. hydropower, airports, highways), each sub-project is relatively small, requiring simple designs which can often be standardised. Design and implementation of such works can be carried out adequately by a team of district engineers and technicians. There is usually no need for specialist engineering inputs. In exceptional cases, where specialist inputs are required, these type of skills could be obtained from private consulting firms or seconded from a central agency.

Equally, if the works contracts are packaged into appropriate sizes, ideally to the size of the individual sub-projects, it is possible to utilise the local construction industry, based in the districts and provinces where the works are located. Contracts of this size can easily be handled by local authorities.

### **Award Contracts**

The authority to award contracts is in most contract management systems linked to the party who actually finances the works, i.e. the Client. The client may nominate a third party for supervision of works, however, the financial obligations, as spelled out in the general conditions of a contract, would normally remain with the client. When managing a public works contract,



the client would be the government agency who has been vested with the responsibility of providing this particular form of infrastructure.

The authority to award contracts is therefore linked to financial authority. As mentioned earlier, real decentralisation would involve vesting financial authority to local government, including the task of awarding contracts. This also includes the authority to carry out bid evaluation and final selection, instead of relying on some central tender board.

From an ownership point of view, rural infrastructure represents public assets under the responsibility of local government. This basically implies that the client for any improvement or maintenance works of this infrastructure would be the local authorities.

However, the sentiments at central level against devolving this authority to local govern-

ment is somewhat justified when the capacity at local level is limited. The transfer of authority needs to be carried out hand in hand with developing sufficient capacity within local government to manage the works. This involves vital issues such as sound and transparent practices for bid competition and payment of works, adequate supervision capacity, expedient cash flow arrangements, acceptable accounting procedures and, finally, efficient mechanisms for maintenance of the improved assets.

### **Monitoring**

Monitoring deals with two major issues, first the effective utilisation of the resources allocated to the infrastructure development works, and secondly the effect of the interventions in which the investments are placed. There is a demand for monitoring the use of the resources to ensure

a certain level of transparency and good governance. Equally, the physical works monitoring forms the basis for future programming of remaining works as well as influencing programming and planning decisions in other related infrastructure works projects and programmes. For these reasons, there is a demand for monitoring and reporting back to all the levels of government involved in the planning and budgeting activities.

### **Accounting**

Accounting is an activity which needs to take place at the level at which funds are being spent. This may seem obvious, however in many programmes the importance of this issue is underestimated. With this responsibility follows regular auditing which needs to be carried out by independent organisations - preferably recruited from the private sector.



## 1.6 The Role of the Centre: Programme Coordination

In large scale programmes, there is a demand for coordination of the works carried out at local level. Various sources of funding, need to be coordinated and the monitoring of costs and progress needs to be compiled in overviews covering the sector(s) as a whole. Equally, national targets in terms of overall development objectives and coverage of certain services will require some form of coordination at central level.

The management requirements at central level are essentially of overall nature. It is important that the division of responsibilities between the centre and local government is clear. While local authorities take full charge of works implementation, the centre would deal with overall coordination, mobilisation of funds and monitoring. The following is a list of some tasks to be carried out by the centre:

- ❖ liaison with internal financial authorities and donors on all financial policies,
- ❖ budgetary and financial monitoring of expenditure,
- ❖ developing technical standards, work specifications and administrative procedures,



- ❖ standardising contract documents and contracting procedures,
- ❖ approving and forwarding plans and reports to higher authorities,
- ❖ coordination with other government departments,
- ❖ training needs surveys and coordination of training programmes,
- ❖ bulk procurement of equipment, tools and materials,
- ❖ general monitoring of field work performance and resolving major and common problems,
- ❖ monitoring of adherence and effectiveness of work methods, management systems and procedures.

Finally, the centre may also facilitate the provision of training and assist in the conduct of the required staff training. Although training for rural infrastructure works is in



most cases best organised at local level, resources, in terms of training capacity, such as instructors, training materials, course programmes and other training tools, are more effectively sourced from a national training facility.

### **Coordination of Financial Management**

A considerable portion of funding for rural infrastructure works originates from the centre. It may be sourced from regular government budgets, dedicated funds, such as a road maintenance fund, donor assistance or loans from international development banks. These funds are in most cases managed by a finance ministry before they are disbursed to the relevant agencies at central and local level. Some countries will decide the distribution of funds to the various provinces or districts within a certain sector

as part of the national budgeting exercise. Resources for road maintenance may originate from a road fund managed by an independent road fund board. External donors may wish to invest their funds in certain parts of the country according to an agreed distribution formula. In all these cases there is a demand for a central agency which ensures that funds are disbursed to the local agencies at regular intervals and safeguarding that there are no cash flow distortions which may hamper the agreed work programmes.

### **Budgeting and Work Programming**

Annual work programmes and budgets form the basis for which funds disbursements are made. Local level works agencies are normally required to submit their work programmes as part of the annual programming and budgeting exercise in order to obtain funds from central authorities. Distribution modes may differ depending on the source of funding. Maintenance funding would naturally be based on the level of assets already existing in a maintainable condition under the supervision of each local government authority.

### **Donor Coordination**

One of the most challenging tasks for central authorities is to create one uniform

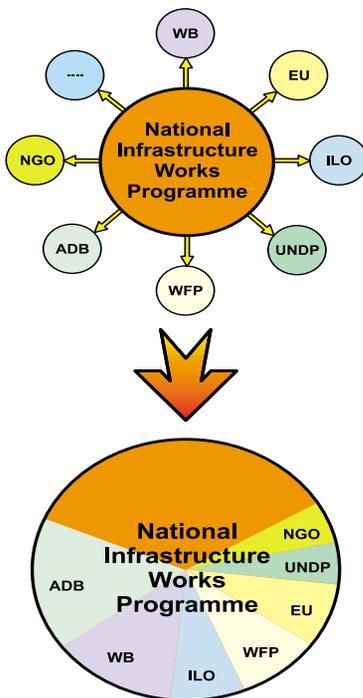
programme based on different funding sources. The donor community has traditionally taken particular interest in supporting governments in developing infrastructure in rural areas. Donors have provided new innovative approaches to the effective provision and maintenance of rural infrastructure. However, their involvement has often lead to a conflict between their ideas and those professed by the government or by other donors involved in the same or similar programmes. In some cases, it may involve such simple issues as agreeing on the basic technical standards applied, and in other instances

more complicated issues such as the choice of procurement procedures.

A common feature in a number of donor funded projects has been that they are organised on an individual stand-alone basis with very limited integration into the existing structures and institutions found at central and local level. Rather than feeding into an overall framework defined by the government, the individual projects have found their own operating framework which is in many cases outside the regular government organisations.

Projects with external funding follow tedious procedures for their conception, appraisal to final approval, before works can actually commence. During this process, it is important that central authorities make sure that these projects have a home within the existing structures, or, if these structures are still not fully developed, the projects contribute to building these permanent structures, rather than establishing temporary project implementation units where capacity is developed temporarily merely for the duration of the project.

Ideally, all donor funded initiatives should be fed into an overall government development programme. During



appraisal of new projects, it is important for central authorities to explain the current situation and how rural infrastructure development works are organised and carried out in the country. If the donor wishes to invest its resources mainly in capacity building, then the appraisal exercise should assess the effectiveness of the current organisation and see how it can be improved rather than seeking alternative outside mechanisms for providing assistance.

With proper donor coordination at central level, the government can channel the particular concerns of various donors to the different components of a uniform national infrastructure works programme. As an example, funding from one particular aid agency could focus on training, another on administration and finance, and others on capital assistance.

The advantages of this type of coordination are obvious. It allows for uniform procedures for contracts management,

employment conditions, planning, budgeting, funds allocation and transfers, auditing, monitoring and reporting. It also allows for the use of standardised technical specifications and work methods.

A standardised system will also allow the government to coordinate all training carried out. In a programme with standardised procedures and work methods, it is possible to provide a uniform training programme which can service the demands of all the projects.

Such efforts will also improve the efficiency of the overall management and monitoring of works. It may also streamline project negotiations between the government and donors when a standard mode of implementation has been established. Negotiations with donors can then concentrate on which part of a national programme they wish to support (geographical area or activity, i.e. training, technical assistance, equipment, physical works, etc).

When the Philippines Decentralisation Act was passed in 1991, the Department of Interior and Local Government immediately set up the Local Government Academy which was charged with providing training courses on all aspects of local government to the newly empowered local government units. Courses were provided both at the centre and also in the provinces. The Academy now has a wide range of training materials including modules on the implementation of civil works at the local level.



### **Monitoring and Reporting**

Monitoring and reporting form the basis for quality assurance and cost control in all works programmes. Reporting of completed works is also required in order to update asset inventories. Furthermore, the reporting of quantities and costs of completed works are important inputs to the planning system. Finally, the monitoring and reporting system is essential to maintain transparency and provide feedback to funding agencies and users to ensure and confirm that funds are being spent according to their intended purpose.

In many programmes, separate reporting is required back to each of the individual funding agencies, i.e. donors, develop-

ment banks, special government programmes, etc. Although various agencies may have different reporting requirements, it is important that the monitoring and reporting system is uniform and applied in the same manner by all parties involved. If special reports are required, these should be compiled on the basis of the standard information submitted by the local authorities. A central agency will need to compile reports from all the local authorities to form a comprehensive report, covering the entire country, a certain region, or works financed by a particular funding source.

### **Training**

Training is often an up-front activity which needs to be



carried out in advance of the time when the skills are to be applied. This implies that when a new programme is launched, the required staff need first to be identified so specific training needs can be established and appropriate training programmes developed and conducted. When the works commence, the staff should already have acquired the necessary skills and be ready to put them into practice.

Large scale works programmes often involve a large number of technical, financial and administrative staff, and in many cases, the demand is greater than the training capacity. A central body will therefore need to prioritise and select the staff for training where the effects of the training provided will have the greatest effect.

If a new works programme is planned for a certain region, it would be natural to prioritise the staff from the local authorities in this area in the next training courses. Equally, if new procedures and work methods are introduced, it is important to allocate training resources for introducing and firmly establishing the new technology.

A centralised training capacity also offers the government an opportunity to pool training resources to various components of a large-scale programme. When new funding is secured from external sources, such as the donor community, it is possible to streamline training activities by involving an already existing training institution. Directing all training needs through one



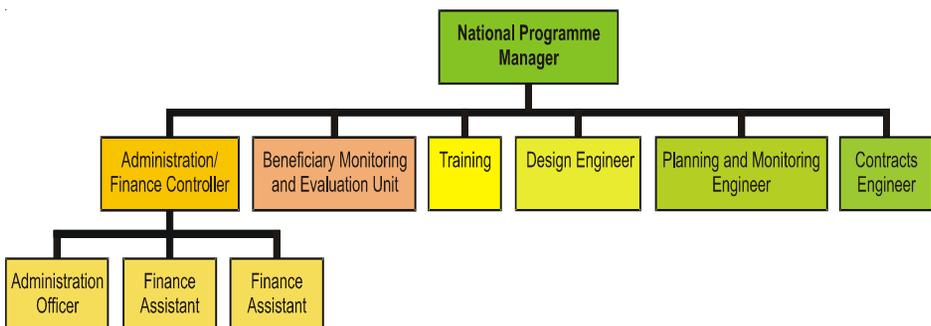
institution is an effective way of strengthening the in-country training capacity.

### Central Organisation

The size of the central organisation is dependent on the magnitude of the programmes. They may consist of units based in a general works department or located in specialised agencies dealing with a particular type of infrastructure. In most cases, they will need to deal with all

the above mentioned activities to a lesser or larger extent.

The figure below shows a central unit which was established for a rural infrastructure project funded by the Asian Development Bank. The important point here was that by the end of the project, the organisation was incorporated into the regular structure of the host ministry - still following the same delineation of responsibilities.



# Chapter 2

## Local Level Infrastructure Planning

### 2.1 Introduction

In practice the administration and planning of infrastructure has conventionally been dealt with on a sectoral basis. Most governments allocate administrative authority and responsibility for infrastructure to different ministries according to category or sector - power supply, roads and highways, water, irrigation, flood control and the like. At national level, infrastructure investments are similarly planned on a sectoral level. In practical terms, of course, this makes sense in that the amounts invested in each sector are often so large that it would be impractical for one ministry to deal with more than one or two categories. Equally, the sheer size and cost of many infrastructure projects - such as highways, power stations or telecommunications systems - mean that their impact on other sectors can be identified and planned for.



Nevertheless, the result of this sectoral approach has been that water supply, irrigation, roads and other infrastructure have tended to be planned in isolation from each other, or at best within the confines of centralised, sectoral planning. In mitigation, there is usually some form of central planning agency, whose role it is to ensure that sectoral plans do not contradict or duplicate each other.

This conventional approach to infrastructure planning often tends to be top down and non participatory. In general, this has not presented problems in relation to major infrastructure programmes, especially those of general public utility. However, this approach is neither appropriate nor successful for rural infrastructure. There are a variety of reasons for this, as outlined below.

In the first place, the funds available for rural roads, health clinics, primary schools

and local markets are, and will always be, limited. Indeed, much of the basis for planning is that needs always outstrip funding, irrespective of the level of development. Planning, therefore, involves ranking priorities among candidate projects and among the benefits each may bring, then making decisions among and between them. Thus, the number and quality of schools and health centres have to be compared with levels of road access to assess how much will be allocated to each. Not only this, but at local level there is often quite close interdependence among different types of infrastructure. For example, there may be a choice between providing road access to an existing school or building more schools.

Secondly, the location of infrastructure calls for close consultation with those expected to benefit. This is not, or not only, in the interests of equity, accountability and



democracy. It is also because the operation and maintenance of many local-level facilities often depend on contributions - in cash and/or in kind - from the beneficiaries.

Thirdly, resources are usually limited even for the planning and design, let alone the construction of rural infrastructure. Value for money in planning and design can best be obtained by drawing on local knowledge and insights as inputs to the planning process.

Fourthly, planning for many types of rural infrastructure involves responding to both economic and social needs. A top-down approach concentrating on economic criteria alone is out of place. Economic

analysis tends to concentrate on concrete outputs whilst the equally important social services require a concentration on people. Thus, economics is of critical importance in making decisions on the physical design of the fabric of a health centre. But ordinary people need to have a say in where a new health centre should best be located and what type of service they want it to provide. In the latter aspect of the planning process, ideas about the likely return on investment will have little meaning. Irrigation schemes identified on the basis of potential agricultural increases would also depend on proper pricing policies and transport services being available.

## 2.2 Local Level Planning Procedures

Over the years, several procedures for both identification and selection of rural development works have been developed and tested. These vary in complexity according to the function that the improved infrastructure is serving. What becomes clear, however, is that to ensure effective participation, the procedures need to be simple yet efficient and should not be resource intensive.

### Identification and Selection

Rural infrastructure construction or maintenance works are not selected in an arbitrary manner. Whilst each programme of works may have its own tailor-made identification and selection procedures, the process is similar in most cases and passes through a number of stages:

prepare the first set of requests, which are then forwarded through the commune or district to the appropriate level of administration where funds and implementation capacity are found to actually carry out the works. Generally, the selected projects should meet certain pre-determined criteria, which have been set by the programme management in collaboration with planning and funding authorities.

The projects identified are then forwarded to the appropriate level of authority (i.e. a rural development committee) for further discussions in terms of overall district and province priorities and compared with the need for other development projects. Finally, the list with the selected projects



### (i) Initial Identification

The initial identification step is the preparation of a list of projects proposed to be constructed/rehabilitated/maintained. This initial list should be prepared with local community involvement. In many places, the village development committees will

need to be assessed by the relevant technical agency.

### (ii) Screening

The technical agency usually carries out the screening of identified projects in order to disqualify those projects that do not meet certain criteria, are not technically or economi-

cally feasible, or are not likely to have the expected impact. These assessments are often carried out on the basis of rough estimates of costs and other resource requirements.

It is important to note that the technical agency merely provides information as regards to costs and feasibility of the various proposed projects, and on this basis determines whether the projects meet certain agreed selection criteria. The final decision to place a project on a list for further analysis is taken by the appropriate development committee.

### ***(iii) Appraisal***

Appraisal is a more detailed assessment of the justification for supporting an investment in a certain development project. Often, a cost benefit analysis is carried out as part of the appraisal. If this is done, then construction costs need to be estimated and socio-economic data assembled (population densities, agricultural potential, number of users, etc).

### ***(iv) Ranking***

A programme may not be able to absorb all selected projects that have passed the screening and appraisal phases. An overall ranking of the selected projects, on the basis of overall weights of some important evaluation factors, will be necessary in order to

decide which projects should receive priority and in what order. The criteria used for ranking may be simple, e.g. the road with the lowest cost per head of population served could be improved first. However, at this stage, other social criteria may also be introduced.

In relation to ranking of rural infrastructure, it is important to note that various funding sources (a) may have different ranking criteria, and (b) have already been allocated to certain sectors and will need to conform to specific selection criteria set for this specific sector. This is very often the case with funds made available from central authorities (i.e. the Education Ministry requires that their funds are only utilised for activities related to the provision of primary school education).

### ***(v) Approval***

Eventually, projects selected according to the above mentioned procedures require, as a final step, approval from provincial or central authorities and/or an external funding agency. No work should start before such approval has been given and funding has been secured.

## 2.3 Participation and Integration

The process described above is one that would normally be carried out by the local authorities with technical support from the staff in charge of infrastructure works. In general, the process is entirely valid. However, the process of decentralisation affords the possibility both for greater participation and for a multi-sectoral approach. The existing systems can be augmented to take advantage of this opportunity.

Infrastructure and roads in particular provide the opportunity for development, but they do not guarantee it. Dealing with infrastructure in isolation can often result in physical services being provided which are then not used effectively. A community may state that they want a road as a priority and this will be included in the priority list. However, it is not the road that the community wants but access to markets and other economic and social services. This implies, therefore, that the focus should be on the facility to which access is required to ensure that the greatest number can benefit from the improved access.

Planning on the basis of access starts with identification by the stakeholders of their

access needs. Through a participatory process, using simple procedures and visual aids such as mapping, the stakeholders can identify their priorities.

The particular advantage of this process, apart from being simple and low cost, is that it allows cross sector comparison and integration. For example, limited access to primary education may be solved by improving the road or tracks leading to the school, by improving the level of transport services or through an improved siting of the classrooms. The process also provides for the stakeholders to be involved in the planning process and to identify their priority needs.

The process of accessibility planning, developed in the Philippines, Laos and Malawi, was designed to work in an overall planning framework. This has certain repercussions. The results are not absolute in the sense that they recognise that overall targets, budget levels and benefit impact relate to the overall planning framework into which the process is being integrated.

The process that has evolved focuses on the household as

the unit of generation of transport journeys. This is the standard procedure that has been used in urban transport planning for many years. Accessibility planning takes this focus on the household and applies it in a rural context.

Data is collected at the household level on time taken and manner in which households obtain access to services and facilities. The analytical procedure results in a demand-oriented definition of access or transport need. This uses numbers of households and the time they take to obtain access as a basic indicator of the need for better access.

The data is used to identify a set of interventions which would most effectively reduce the time and effort involved in obtaining access to supplies, services and facilities. These interventions could be either transport (in terms of rural infrastructure, the means of transport or transport services), or non-transport (in terms of improved distribution or the most appropriate siting of services).



IRAP covers several sectors. In particular, it provides detailed data on the access that rural households have to services and facilities. These are:

- ✦ water,
- ✦ energy,
- ✦ health,
- ✦ education,
- ✦ markets,
- ✦ agricultural inputs,
- ✦ agricultural outputs,
- ✦ crop marketing and post-harvest facilities.

IRAP has been designed to assist local-level planners to make appropriate investments of the almost certainly limited funds likely to be available. This concentration on the local level has several advantages, not least because primary data are collected by local people at the village level and are then analysed to identify priority improvements. The IRAP procedure, therefore, also provides a basis for developing the capacity of local-level planners.

Rural infrastructure planning which emphasises the need for and the accessibility of supplies, services and facilities is in keeping with current ideas on participation and decentralisation. Local-level planning has to involve local people, not only in providing a description of their needs, but also in designing appropriate solutions.

## 2.4 Training for Infrastructure Planning

IRAP is a tool to be used as part of the overall planning process. It is designed to ensure that the priorities for rural infrastructure are set in accordance with the actual needs of the rural population. It has been applied effectively in several countries in Asia and Africa. The system is designed for use at the local government level and has been developed to ensure that it is simple to use, cost effective and not resource intensive.

Training in the use of IRAP generally consists of practical application. Consequently, the initial 2-3 day training is a presentation of the process to key officials of the local government unit to provide them with an understanding of the process, what they can expect from the process and to discuss the logistics and responsibilities of implementation.

Following from this presentation would be the training of enumerators for the collection of data. Data is then collected from the area under consideration. Depending on the size of the area to be covered the collection of data is expected to take from four to six weeks.

The data would then be compiled either through a

simple computer programme or manually, whilst at the same time simple maps are prepared of the area, showing the important physical features and the existing facilities - roads, tracks, clinics, schools, etc.

This data is then analysed. From this analysis emerges an accessibility profile and a set of accessibility indicators which illustrates the levels of accessibility that the population have to different social and economic services.

This compilation and analysis of the data provides a simple means of presenting the data to the local government unit in a workshop. In the workshop, the participants discuss the validity of the results and, using the data as a guide, define for themselves the major access priorities in the commune.

The results of the workshop would be drawn together in a simple report, which would be used as the basis for the development of an action plan through a series of discussions with local officials, stakeholders and politicians.

The whole training cum application process normally covers a period of about five months.

# Chapter 3

## Private Sector Involvement

### 3.1 Public/Private Implementation Choice and Modalities

Depending on the overall policy on the use of the private sector, works can be implemented by private contractors or through public administration. Devolving some of the responsibilities for planning and executing civil works to the private sector have clear advantages in terms of obtaining more responsive and sustainable implementation arrangements. However, this does not mean that the local



authority does not need increased capacity as such. Privatisation only implies that the specific responsibilities of the local authority change - they do not disappear.

One of the opportunities presented by decentralisation is a greater use of local resources. This means that the local private sector can be encouraged. Moreover, there is also the opportunity to create local employment through the use of labour based methods for the implementation of works.

When involving the domestic private sector in the execution of local infrastructure works, there are several important issues which need proper attention during programme design and implementation. Local contractors will not provide an easy solution to the implementation of works. Local contractors will require a certain level of development assistance which entails a series of new activities, such as

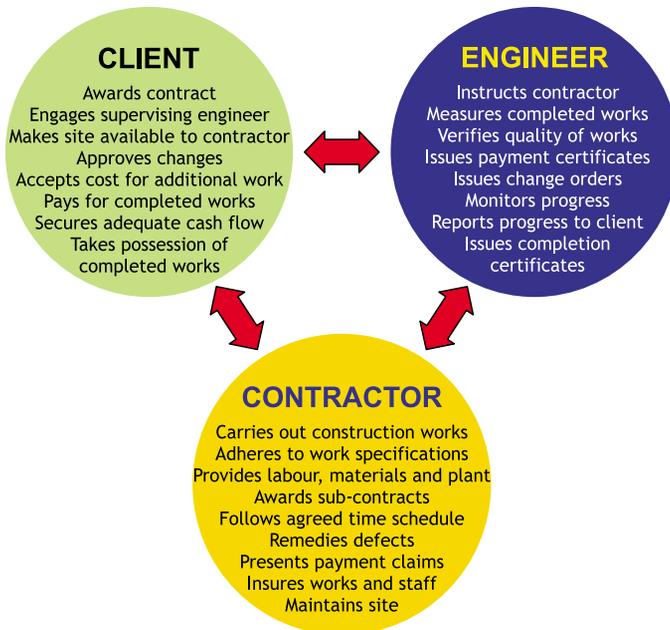
management training, development of user-targeted training material, development of appropriate contract procedures, streamlining of payment procedures and last but not least providing interested contracting firms with attractive market prospects and a conducive environment in which they can operate efficiently.

All the above mentioned activities require an institutional base in which capacity development is carried out and sustained. As mentioned before, there are several actors which could provide the combined capacity to implement the infrastructure works.

The general conditions of a civil works contract normally defines the roles and responsibilities of three basic parties. Contract agreements are entered into between a Client, i.e. the owner of the assets to be created and a contracting firm, the executor of the works. In addition, the works are normally supervised and

verified by a third party, the Engineer. The figure below summarises the main division of responsibilities when implementing civil works contracts. This applies equally to centrally administered contracts as well as smaller locally administered contracts.

firms is important to bear in mind when identifying and selecting appropriate contractors for a specific type of work. The required size of contractors is also directly linked to the bid packaging. If the works are packaged into large lots of relatively high



### 3.1.1 The Contractor

The contractor is the most easily identifiable party, and decentralisation permits a greater use of local contractors who can be recruited in the vicinity of where the works are taking place. The contractor is identified as the party who executes the physical work defined in a contract agreement.

The size of the contracting

contract values, there will be a demand for attracting larger firms. If the works are split into smaller contracts, it may be possible to attract local firms already operating in the vicinity of the project areas.

Before a works programme is formulated and the appropriate modes of procurement are chosen, it is important to identify the various types of

Type	Description	Type of Works
<b>Petty Contractors</b>	<ul style="list-style-type: none"> <li>◇ single person</li> <li>◇ labour only</li> <li>◇ limited skills</li> <li>◇ not registered</li> </ul>	<ul style="list-style-type: none"> <li>◇ Routine road maintenance,</li> <li>◇ labour only sub-contracts,</li> <li>◇ spot improvement works</li> </ul>
<b>Small-scale Contractors</b>	<ul style="list-style-type: none"> <li>◇ local builders</li> <li>◇ possess some basic equipment and hand tools</li> <li>◇ registered as tradesmen</li> <li>◇ capital security low</li> <li>◇ possess some technical skills but limited managerial experience</li> </ul>	<ul style="list-style-type: none"> <li>◇ building construction,</li> <li>◇ sub-contracts for special skills,</li> <li>◇ construction and repair of simple structures and buildings</li> <li>◇ rural road rehabilitation</li> </ul>
<b>Medium sized Contractors</b>	<ul style="list-style-type: none"> <li>◇ registered</li> <li>◇ possess some equipment</li> <li>◇ capital security limited</li> <li>◇ entrepreneurial skills</li> <li>◇ technical and managerial skills</li> </ul>	<ul style="list-style-type: none"> <li>◇ major rehabilitation works,</li> <li>◇ road gravelling works,</li> <li>◇ bridge and culvert works,</li> <li>◇ construction of gravel roads</li> </ul>
<b>Large-scale Contractors</b>	<ul style="list-style-type: none"> <li>◇ registered</li> <li>◇ good access to equipment</li> <li>◇ good capital security</li> <li>◇ proven entrepreneurial skills</li> <li>◇ good technical and managerial skills</li> </ul>	<ul style="list-style-type: none"> <li>◇ large scale infrastructure programmes</li> <li>◇ complex building projects</li> <li>◇ works appropriate for equipment-intensive work methods</li> </ul>

contracting firms which operate in the country. The table above provides a general description of the different types of contractors, categorised according to their size and the type of works they are capable and interested in carrying out.

**(i) Petty Contractors**

This category of contractors usually consists of one man firms, sometimes assisted by a limited amount of tools and unskilled workers. They may be labour only contractors, usually consisting of a local businessman

sub-contracted to carry out specific work, relying mainly on unskilled casual labour.

Organised local community groups such as farmers associations and village welfare groups can also be classified as petty contractors.

A common feature for this group is that they are not formally registered. They do not possess any capital and are therefore extremely vulnerable to cash-flow distortions such as late payments. These contractors do not operate their

accounts through a bank. Local banks will often not consider them as attractive clients and therefore do not provide them any services.

Petty contractors do not possess any equipment, and lack any means of transport. Due to their lack of mobility, they need to be recruited from the vicinity of the work sites. They are mainly used for maintenance works or simple, clearly defined sub-contracts requiring a minimum of skilled labour and equipment.

After receiving appropriate training development assistance, these groups can prove to be highly efficient in carrying out minor rehabilitation works and routine maintenance. Some show good entrepreneurial drive, and given favourable conditions for their operation, such as a steady supply of work and regular and timely payment, they can survive and eventually emerge as small-scale construction firms and constitute an important component of the domestic construction industry.

### ***(ii) Small and Medium Size Contractors***

Small and medium size contractors are often characterised as the firms on the lower level of a classification scale. They are found all over the country and often constitute the majority of the

construction firms available in a country.

A common feature with this type of firm is that their financial capacity is limited. Some conduct their business through banks, while others obtain their credits and maintain their savings and profit through other financial channels. Equally, their equipment fleet is limited and is often even more restricted in terms of heavy plant requiring large capital investments.

The strength of this group is their proven capacity as entrepreneurs. These firms have all carried out works contracts before and evidently managed to secure a profit from their business activities in the construction industry. This implies that they also possess a certain technical and managerial capacity through the employment of professional staff.

Due to their large numbers and ready availability, also in the more remote parts of the country, they are attractive partners in decentralised civil works programmes since they do not necessarily need long periods and substantial resources in order to mobilise. Equally, they are well known in their local neighbourhood so their strengths and weaknesses are generally known among potential clients.

Due to their limited financial capacity, they are also vulnerable to cash flow distortions. Late payments of work may cause immediate delays in work progress since their liquidity is limited.

When developing small-scale contractors to implement labour-based works, it is important to ensure that the authorities are able to supply a steady amount of works to these firms. In order to defend investments in terms of project development and training costs, a firm government commitment on future work prospects would be expected.

When the contractors are well established, they should be encouraged to look for assignments funded by other sources, thereby reducing the dependency on a specific project and a single client.

### **(iii) Large-scale Contractors**

In many developing countries, the number of really large scale contractors are usually very limited. They are often subsidiaries of multinational companies, or established as joint ventures between multinationals and local companies.

The strength of the large contractors is their solid financial capacity and ability to raise additional capital through commercial banks and other lending institutions. For



this reason, they would also be able to provide any type of equipment required for the works. Equally, they can tolerate substantial delays in payments without experiencing serious cash flow problems.

The disadvantage of these firms is that they rely on their extensive equipment fleet for execution of works and are often reluctant to replace it with labour-based work methods. These firms will need to maximise the utilisation of their equipment in order to recuperate their capital investments.

Also, they are normally only found in the major cities and have limited knowledge of local conditions. Due to their normal area of operation, they require longer and costlier mobilisation before they are ready to operate in remote areas.

For these reasons, they would only be cost-effective for large scale-projects which are confined to a limited geo-

graphical area. Smaller works dispersed over a large region would be less attractive to large scale contractors.

Lastly, it is important to note that large contracts require more complex procurement procedures, often involving international competitive bidding. This is a time consuming process which can be avoided if the works are divided into smaller lots at contract values where local bidding procedures are allowed for.

### 3.1.2 The Client

Similar to the purchase of other goods and services, a works contract will have a client. The client can be an individual, such as someone wishing to build a house, or it may be a company or the government wishing to build or install some kind of utility. Normally, the client is identified as the organisation which requires a certain end product and has the authority and money to order and pay for it.

When a project is financed from public funds, whether it is with financial assistance from a donor, an international development bank or from regular government budget sources, the government is recognised as the client. For public works projects, the client can be identified in greater detail, such as a

national roads authority, planning to rehabilitate a road, or the Ministry of Health building a clinic. Equally, a local government authority can be identified as the client for rural infrastructure works.

A basic assumption when dealing with any contract agreement is that the client is also the provider of the financing of the contracted works. Funds may originate from various sources, such as the government treasury, road user funds, donors and local tax revenues. When the client enters into a contractual agreement, certain financial obligations are made, and in order to honour those obligations, it is essential that the required funds are readily available to the client. If these funds are not available, then the client is legally not in a position to award a contract.

### 3.1.3 The Supervising Engineer

In terms of implementing works, the client often chooses to delegate the supervision responsibilities to a third party, the Engineer (also referred to as the Contracts Manager or the Superintendent). In situations where the work is dispersed over a large geographical area, it would seem natural for the client to choose an institution which is well represented at local level.

The duties of the Engineer, in the context of a works contract, are summarised in the table below.

There are several ways of

contracting out works. Depending on the type of works, it can be through engaging recognised contractors, through community contracts or through labour only contracts.

The Engineer appointed by the Client to supervise the works is in charge of administrative, technical and financial control of works, daily on-site supervision, issue of payment certificates and the final completion certificate. The Engineer is responsible for the following activities:

#### **Administrative duties:**

- ✦ Maintaining daily site records and preparing progress reports on the status of the project,
- ✦ ensuring liaison with local authorities and institutions, particularly on matters such as land disputes, authorisations to carry out surveys, access to quarries, etc.,
- ✦ suggesting suspension of the works to the Client in case of serious flaws,
- ✦ issuing completion certificates and maintenance certificates when handing over works,
- ✦ playing the role of a mediator in the settlement of disputes between the Contractor and the Client,
- ✦ ensure that workers are paid according to the schedule and rates agreed,
- ✦ arrange site meetings

#### **Technical duties:**

- ✦ ensuring that the Contractor has complied with work standards, conditions of contract and the schedule of works specified in the contract,
- ✦ informing the Client promptly of any defects for which the Contractor is responsible and which could be detrimental to the quality of the project,
- ✦ providing technical and managerial advice to the Contractor, as required,
- ✦ ensuring that the Contractor respects the planned time schedule for the works,
- ✦ advising the Client on possible modifications of plans, specifications and work methods,
- ✦ ensuring proper execution of remedial works before final handing over of works.

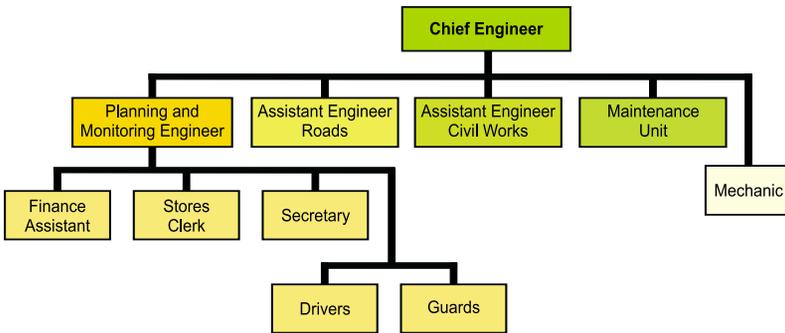
#### **Financial duties:**

- ✦ liaise with the clients representative to ensure regular budgetary provision for the work under contract,
- ✦ carry out surveys with the Contractor to calculate the quantities of works actually completed,
- ✦ certifying monthly statements and submitting interim certificates to the Client for payment,
- ✦ liaise with the client representative to ensure the timely payment of certificates.

## 3.2 Development of a Contracting Capacity

Devolution of responsibility provides the opportunity for greater involvement of locally based contractors. However, it also requires that the capacity of the local contractors is equal to the task, and that there is a sufficient capacity to administer and supervise the contractors.

management also include the payment of the contractors. In other words, these responsibilities need to be vested in an institution which not only have sufficient technical know-how, but also possess a financial management capacity. If this capacity is lacking, it is impera-



The first step in this process is to establish effective contracting procedures and appropriate contract documents. Without these the capacity cannot be developed. The next steps are to (i) provide support to the contractors both in terms of technical training but also in relation to business capacity, and (ii) build up a local contracts management capacity.

Contracts management capacity needs to be developed at the appropriate level of local government, where qualified staff is found or can be recruited. Equally, it is important to bear in mind that contract

management such skills are developed within the local authorities.

Local government organisations often include a small public works department. In many countries, their level of activity has been very low and for this reason, limited resources have been allocated to their units. When larger responsibilities are vested into local government, it is often necessary to strengthen these institutions, thus enabling them to effectively carry out the duties involved. The figure below describes a typical local works authority, managing works carried out by local private contractors.

This unit was designed for a local government authority serving a total of 500,000 inhabitants, dealing with rural infrastructure development works such as secondary and tertiary roads and bridges, markets, water supply, primary schools, irrigation structures and public buildings.

The composition of the above organisation may be appropriate for a local government unit involved in a considerable development programme with an emphasis on new construction and rehabilitation works.

Once the development programme evolves into a maintenance programme, the engineering staff can be reduced and instead the maintenance section can be strengthened. Since road improvement works often take up a major portion of infrastructure development budgets, it may be necessary to allocate an engineer on a full-time basis for this purpose.

The assistant engineers for rural roads and civil works are mainly used for quantity surveying, design, and works supervision. The Planning and Monitoring Engineer mainly deals with planning of works, preparation of tender documents, maintaining contract registers, compiling progress reports, and managing the administrative duties of the support staff.

The maintenance unit is primarily concerned with programming and supervision of routine road maintenance works. Due to the geographical dispersed nature of this work, it is useful to establish a separate unit dedicated to this important function.

If local authorities carry out some force account works (i.e. emergency repair works), and for this reason possess a certain amount of construction equipment, there is a demand for a mechanic for the preventive mechanical maintenance and repairs of the equipment they own. Although most of this work can be contracted out to local firms, the local authority would require a competent person to programme and supervise such services.

An alternative to this model is for the local authority to rely more on the services of local consultants instead of taking on some of the engineering positions. In cases where the development programme is expected to last only for a limited duration, it would be more appropriate to build up a solid organisation for future maintenance requirements, and rely on consultants or temporarily employed project engineers for the construction works.

### 3.3 Development of Contract Management Capacity

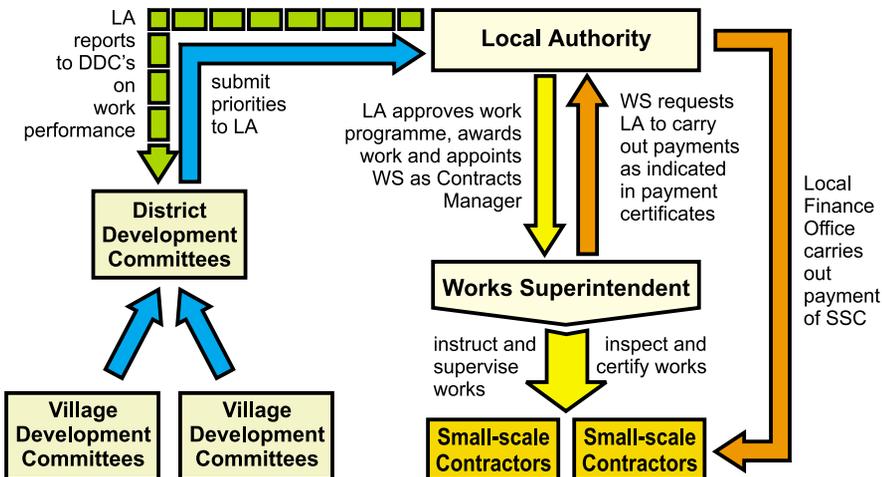
It is often ignored that the privatisation of works implementation requires a certain level of capacity in the local authority agencies to administer contracts. It is of little value having effective and efficient contractors if the administration of those contracts is inefficient, slow and/or unduly bureaucratic - or simply not prepared or authorised to carry out this task. Therefore, appropriate management procedures need to be established and local authorities trained in terms of establishing who and how they will be involved in contract administration.

The figure below describes a flowchart of events from project inception to implemen-

tation and how the various stakeholders at local level are involved in the various aspects of management.

Rural infrastructure works would ideally be initiated by a demand voiced by the future users of the assets to be created or rehabilitated. Requests for infrastructure developments are voiced in the local political bodies and development committees, and processed by the representatives of the target beneficiaries, finally leading to a local development plan.

Once the political bodies have set their priorities, the plan is submitted to the local authorities for implementation. The local authorities would then



engage their technical staff to develop detailed plans and detailed cost estimates. This information is finally fed into the annual work programme and budget of the district/ province.

The technical staff prepare detailed work programmes for each of the work projects, which include the time required for the announcement of works, bidding, evaluation and finally the period required for works execution.

After bid announcement, the local authorities award the contract to the most competitive bidder, and appoint a supervising engineer. In most cases, the works can be supervised by the technical staff from the appropriate local government agency, however, in some cases, the authorities may choose to engage a private consultant for work supervision.

The daily supervision of works is carried out by a superintendent. This would normally be a technician or an engineer, who would make frequent visits to the work sites.

This person is fully responsible for assessing the quality and performance of the contractors. In other words, he/she is responsible for the approval of works and certifies the works completed by the contractors.

Payment certificates are issued by the works superintendent (supervising engineer), and act as a payment advice to the local authority, basically stating that a certain amount of work has been satisfactorily completed and is now due for payment.

This certificate is submitted to the finance section of the local authority which will then process payments to the contractors according to the instructions given by the engineer.

What is important to recognise is that the capacity of the decentralised units has to be developed to meet the challenge of contract administration. This certainly requires some form of training but also requires an attention to streamlining procedures and systems so that they can be easily understood and used at local level.



### 3.4 Contract Procedures - Prequalification

Contract procedures are generally biased towards the execution of relatively large-sized projects. To be able to tender for works, contractors are usually required to be registered with relevant authorities, and on the basis of their skills and size, they are categorised into various levels or classes. In order to qualify for a certain category of works, the contractor is usually required to possess a minimum number of staff, equipment and a certain financial capacity.

In rural infrastructure development programmes, works are often divided into a large number of geographically dispersed sub-projects. The works of each of these sub-projects are often relatively small and can therefore be carried out by local builders, artisans and small-scale

contracting firms. However, to allow this part of the construction sector to participate, new and innovative approaches to contracting are required. For labour-based works, proven management experience or training certificates could be substituted as a pre-qualification requirement.

A common argument against splitting works into smaller and more numerous packages contract is the ensuing increase in workload related to contracts administration. This is a realistic argument when works are managed and supervised by centrally based organisations, in charge of large scale investment programmes.

Equally, clients tend to prefer larger bid packages in order to attract larger contracting firms. Larger contractors are perceived as more reliable, since they can easily mobilise financial securities and provide a wide variety of equipment and skilled labour. These are important factors when implementing large-scale and complex infrastructure projects. However, with smaller and more dispersed works, these features are less important to the timely and effective implementation of works. It is more important to find local firms which can





mobilise quickly and provide the basic skills required for the works.

When works are split up in smaller packages contract it is important to bear in mind that (i) the smaller value of the contracts and (ii) the simple works often involved in relation to rural infrastructure works, do not require the comprehensive contract documentation applied to large scale works.

When contracts are small and works are carried out using conventional technology and work methods, standardisation of contract procedures and

documentation can significantly reduce the amount of contract management work.

The most important part of managing works is related to the supervision, measurement and payment of works. To carry out this responsibility in a proper manner involves having the same amount of technical personnel whether contracts are packaged in large or small lots. When utilising locally based personnel for this important task, considerable savings can be achieved related to logistics such as transport, traveling time, etc.

### 3.5 Appropriate Design and Work Specifications

Design specifications in contract documents are often rigid in terms of standards and methods and based on the requirements of large-scale civil works projects. Quality requirements for materials, and design standards have often been designed for complex and large-scale civil works and thereafter applied as a standard for all type of works.

Experience shows that for rural infrastructure works, these standards are often inappropriate

and too costly as compared to the performance requirements of the completed works. It is therefore important to review existing construction standards and adapt them to realistic requirements thereby also allowing for the use of locally available materials and the application of applying work methods which do not rely on unnecessary, sophisticated and expensive equipment. This approach would also allow local contractors to compete effectively for such works.

#### Use of Labour-based Appropriate Technology

For civil works, most technical specifications still prescribe both the work methods to be applied, as well as the quality norms of the completed work outputs. Since the specifications have been developed mainly to cater for the requirements of large-scale infrastructure, they commonly include direct references to the use of specific construction equipment (i.e. number of passes to be carried out by a grader for road maintenance works, minimum size of compaction equipment, etc). For this reason, contract documents, through the standard works specifications, are biased against the use of labour-based work methods.

In rural infrastructure works, there are a number of work activities which can be carried out far more effectively using labour-based work methods, rather than relying on the mobilisation of heavy equipment - often not found locally.

However, in order to effectively utilise labour-based works technology, it is important that the technical specifications clearly prescribe how and when such methods can be applied, at the same time as ensuring that the quality is not compromised.

Design specifications are often too comprehensive and involve lengthy deliberations on how quality of materials and completed works should be tested in order to comply to established standards. This may be appropriate for large scale programmes where it can be justified to include sophisticated testing methods as part of the supervision. However, for smaller works, such procedures are inappropriate considering the desired end product as well as in terms of costs. For rural infrastructure works, it is therefore important to establish a set of testing procedures which safeguard the crucial quality requirements, and can be carried out by the local authority, relying on inexpensive methods and equipment.

### 3.6 Size of Work Contracts - Appropriate Bid Packaging

Decentralised supervision combined with the involvement of local contracting firms has proven to be a cost-effective method of securing that works are completed in time and at the required quality standards.

When working with smaller locally based firms, it is important that works are appropriately packaged. Although this may involve some additional work in terms of contract preparation and supervision, the result is that local authorities can carry out work relying on locally available resources and reduces the need for mobilising contractors located a long way from the project work sites.

Also, for larger works, such as rural road rehabilitation works, it is possible to increase the involvement of the local construction industry. A road improvement contract can be split into separate packages for the bridge and culvert works, gravel supply and road works. Culvert works can be carried out by local artisans with some experience in masonry work. Local firms with previous experience from house construction can be engaged for construction and repair of small, single span bridges, and local transporters would be

capable of carrying out sub-contracts on gravel supply.

In some countries, bid slicing has proved to be an effective way of involving smaller local firms in bid competitions. By splitting the works contracts into smaller packages, contractors of varying size can bid for one or several slices of works depending on their financial solidity. Dividing works into smaller contracts does, however, lead to

In routine road maintenance, there are many tasks which can be effectively carried out by local contractors if simple contract award, monitoring and payment procedures are adopted. Small scale, village-based petty contractors with only minimal previous experience quickly assimilate the necessary skills to organise and manage a number of workers for such activities as de-silting of drains and culverts, gravel excavation, hauling of small quantities of materials, and vegetation control. Simple contract documentation of this nature could be in the form of a task work order (a specified job of clearance, de-silting, etc. at specified unit rates), a routine maintenance contract (a set time rate for an expected result) or a labour only contract.

increased management responsibilities. On the other hand, it reduces the risk of non-performance since the client is then not only relying on the good performance of a single contractor. With standardised contract documents and an efficient contract management system, it is possible to handle the additional supervision requirements.

### 3.7 Simplified Contract Documents

Standard contract documents are often designed to protect the client by transferring to the extent possible all risk to the contractor. With contracts of a limited value, in which risks are somewhat contained, it is not necessary to apply all these clauses. However, rather than rewriting the entire system, it is easier to simplify the existing procedures by only including the parts which are necessary for a specific type and size of works.

Even if contract documents of greater or less detail are to be used for the varying scale of works, one essential element is to attain continuity throughout the different documents. This will enable any contractor to operate in a familiar environment throughout the various categories of contracts with varying complexity and volume. Thus, a contractor or contracts manager understanding the concepts of a contract document in its simplest form, will recognise the more detailed documents used for larger projects.

This issue has already been recognised by some major institutions dealing with the standardisation of contract documents. FIDIC<sup>3</sup> as well and the Institution of Civil Engi-

neers have recently prepared simplified contract documents which are intended for smaller contract values. These documents have proven to be appropriate for the engagement of local contractors for small and medium size works.

However, even these contract documents may sometimes be too comprehensive for certain types of rural infrastructure works. When engaging petty contractors on very limited works, such as routine road maintenance, and other works mainly involving manual labour performed by a group of 10 to 20 workers, these documents are inappropriate. For this type of works, very simple documents are required basically identifying the parties to the contract, and detailing the works describing the payment arrangements

Equally, when communities are involved in works execution, with or without voluntary contributions, there is a demand for different contracting procedures. Community contracting often involve deviations from the classic three-tier relationship between the client, contractor and supervising engineer.

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<sup>3</sup> Fédération International des Ingénieurs-Conseils

### 3.8 Decentralised Award, Supervision and Payment

Involving local contractors in rural infrastructure works requires an efficient contracts management organisation that can properly supervise works, as well as take care of all financial and administrative responsibilities. Decentralising this authority to local government is a key factor for the successful implementation of geographically dispersed programmes.

What is often ignored here is that different responsibilities need to be devolved to different levels of the administration (ref. Section 3.3). The unit responsible for awarding contracts may be different from the one that supervises the works which may, in turn, be different from the unit authorised to make payments. This can, and often does, lead to confusion. It is vitally important therefore that the responsibilities being devolved are clearly defined not only in terms of the activities themselves but also in terms of exactly which unit

at the decentralised level is responsible for the activities.

As part of developing government agencies' capacity to efficiently manage and implement rural infrastructure works carried out by the private sector, systems and procedures need to be installed which provide an adequate level of efficiency and transparency in the procurement process. Equally, proper financial management systems need to be established, which ensure that contractors are paid on time.

The responsibility for awarding of contracts is often vested in central or provincial tender boards, rather than with the local authorities which will eventually manage the works carried out by private contractors. Due to the very low financial thresholds maintained in such systems, only the smallest contracts can be awarded based on decisions by the local authorities without involving central tender boards.



Experience clearly shows that this type of bid evaluation arrangements is ineffective and often leads to a delays in the processing of contracts. It is more effective to leave the responsibility for tender evaluation with the local authority which will be in charge of works supervision.

When devolving this responsibility to local authorities, it is important that procedures are established within the administration which ensure fair play during bid competition, i.e. public announcement of bids, clear qualification criteria, transparent procedures for submission and opening of bids and pre-determined evaluation

criteria. In relation to each of these activities, it is also important to clarify the authority and responsibilities within the local administration.

Although most public works contracts cover civil engineering works, the above tasks need a wider involvement, not only of the local technical staff, but also administrative and financial staff. For key decisions such as tender evaluation, there may be a need for involving local political bodies as well. In most cases, these mechanisms need to be developed in the local administrations, demanding both training and initial advisory support.



# Chapter 4

## Maintenance Arrangements

### 4.1 General

Maintenance is dealt with as a minor issue in many rural infrastructure works programmes. In cost terms when compared with the initial construction phase, this may be correct. However, to achieve sustainable benefits of prior capital investments, maintenance is extremely important. Lack of maintenance will quickly result in the initial investment being lost in a very short space of time.

Depending on the type of infrastructure, its users and purpose, appropriate arrangements need to be installed in order to protect prior investments carried out during the rehabilitation/construction phase. These arrangements need to be thought out and agreed upon at an early stage, ideally at the same time as the project is submitted as a proposal to receive funding support.



Maintenance normally involves minor works to contain deterioration of the infrastructure assets. These are more effective when initiated at an early stage and at regular intervals at certain times of the year. The need for maintenance is often closely linked to the effects of rain, which in combination with the use of the infrastructure, causes accelerated wear and tear. Maintenance works, and in particular recurrent or routine maintenance works, are even more geographically scattered as compared to construction works, and when carried out at the right time, involve very limited works at each site. For these reasons, the management structures for the effective organisation of maintenance works are different from what would be optimal for new construction or improvement works. It has been shown again and again that the management of this type of works is more effectively organised at local level - through the involvement of



local government administrations and the locally based construction industry.

Each type of rural infrastructure requires unique solutions in terms of appropriate maintenance arrangements. Resources for maintenance of buildings and structures are small in comparison to other infrastructure such as rural roads and irrigation. For some infrastructure, such as irrigation systems and water supply schemes, the maintenance responsibilities can be transferred directly to the users, with some limited backup and technical support from the



local authorities. In other sectors, such as rural roads, which are regarded more as a public asset, it is necessary to find appropriate management systems in which local authorities take the lead role.

The heaviest maintenance burden for local authorities is in most cases related to the

road sector. Compared to other types of infrastructure, rural road improvement and maintenance are resource demanding and therefore a major financial burden for local authorities. It is also common that this sector is where one would find the largest deficiencies between demand and actual provision.

## 4.2 Maintenance of Rural Roads

### General Requirements

Effective maintenance of a rural road network is a serious responsibility in which technical, financial and institutional issues need to be addressed in a comprehensive and structured manner. Often, the lack of maintenance is blamed in its entirety on the shortage of funding for such activities. The situation is in most cases more complex. In places where road maintenance is failing, it is often possible to detect capacity problems in terms of planning and works implementation. In addition, funds are often diverted from their original purpose as preventive maintenance towards emergency maintenance and rehabilitation works.

In respect of financing, it is important that maintenance funds are clearly identified as part of the local authority budget. The type of maintenance to be carried out needs to be clear to all parties, thereby securing that available budgets are actually used for its intended purpose of preserving the road network in an efficient manner.

Planning and management of works require an effective organisation with a team of skilled engineers and techni-

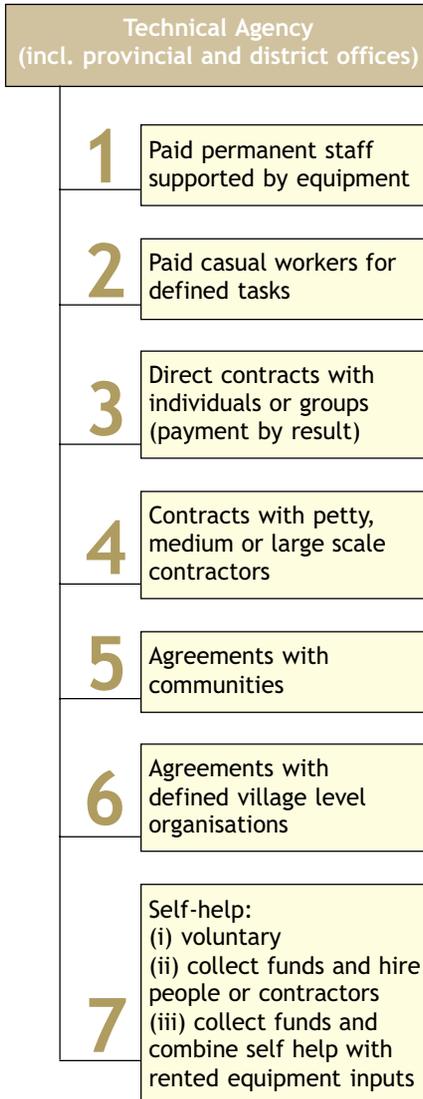
cians with an intimate knowledge of the road network under their supervision. They need to be equipped with the required resources to operate, appropriate management tools and an efficient organisation to remain responsive to the wear and tear of the assets found in a rural road network.

### Organisation

A clear definition of responsibilities is required for each type of rural road, at each level of government and for each activity. Thus at each level of local government it is necessary to identify the work to be done, define who is responsible for the works, specify the budgets required and identify who provides the resources. Indeed, the size of the network should be defined by the level of maintenance funding available. Despite the fact that maintenance responsibilities are normally split between several agencies, depending on the function of the road, the planning of works needs to be carried out in an integrated manner, covering

#### Effective road maintenance requires:

- (i) adequate and timely funding,
- (ii) effective planning and management of works, and
- (iii) sufficient implementation capacity.



the entire network. Maintenance systems based on the utilisation of local resources have as their key characteristic that they relate to the maximum extent possible to the local environment, involving local people in the planning and execution of

the work. The utilisation of local resources has always been a central issue in planning and design of road works. The identification of local material sources, i.e. stone and gravel sources, plays a crucial role in limiting overall costs of works. Other local resources, such as local labour, skills and enterprises, can also play an important role in developing an effective maintenance setup. The figure above summarises different options, which can be applied either separately or in combination.

### Implementation

A combination of approaches 1 and 2 is the classical setup often used when authorities choose to carry out works relying on force account operations. When road works are carried out in this way, equipment, materials and labour are provided directly by the agency. The effectiveness of these maintenance approaches is largely dependent on the availability and utilisation of transport and equipment.

The third approach covers the "lengthman" system, which has been applied with varying degrees of success in a number of countries. Although this arrangement in principle relies on a contract in which the workers should be paid on the basis of outputs, it is often the case that due to limited

supervision resources, payments are instead based on attendance - and in effect resemble the old force account arrangements. The drawback with these systems is that, (i) due to the lack of production related incentives, productivity rates are low, and (ii) with the limited supervision provided to the individual workers, their work priorities are often incorrect or not according to the real work priorities.

The alternative approaches, such as the ones specified under 3 to 7, are likely to require substantial technical and managerial inputs, particularly in the development phase. Despite this initial organisational requirement, it is often the experience that contracts with specific groups eventually demand less supervision, are more transparent and by basing payments entirely on work outputs, are more cost effective. By engaging contractors, communities or other local organisations, agreements are made based on work outputs. The actual supervision of the individual workers is then delegated to the contractors, and is no longer the concern or duty of the technical agency.

Experience also show that entering into contracts with a group of workers also facilitates a greater emphasis on prioritisation of work activities

according to the real needs for maintenance. As the daily work supervision of the workers are delegated to the contractors, the work inspectors can focus their efforts on

### Community Participation in Road Maintenance

It is important to bear in mind that when compared with other infrastructure such as buildings, water supply schemes and markets, road maintenance is a relatively costly undertaking, which often exceeds the levels of contributions which is possible to obtain from local communities.

Most projects that have attempted to transfer the responsibility of road maintenance to local communities have not been successful in sustaining such arrangements. Moreover, the community contributions would normally be limited to covering only a portion of the resources required, typically in the form of voluntary labour for routine maintenance activities. As road maintenance also requires other resources such as materials and the use of construction equipment, external support is still required since most communities do not possess nor can afford to acquire such resources.

Studies have shown that in most developing countries there is simply insufficient wealth to shoulder the cost of maintenance of public roads. For this reason only, it is clear that community involvement should rather focus on planning and identification of appropriate infrastructure improvement as well as playing an important role in terms of expressing the views of the users in relation to the performance of maintenance and operation of the road assets.

There is also a large moral dimension, which is often overlooked. On the one hand, people who live in well-to-do urban areas obtain these services for free, while people in rural areas as well as in poor urban settlements are expected to pay for such public services.

more qualitative instruction and guidance for the works.

In some cases, technical line ministries might be able and interested to provide part of the required technical and material support. More often, however, the optimal solution would be to build up a capacity within the local authorities to execute road maintenance tasks on rural roads.

To effectively apply any of the alternative options, the key elements are the establishment of a performance based system, and the motivation of the workers and their supervisors. The planning and management of maintenance works need to be carried out in a proper and well documented manner, with appropriate levels of supervision and monitoring. These tasks should not, as seen in many instances, be left to the individual workers assigned to carry out the works.

Incentives at all levels need to be incorporated as part of the system in order to make it sustainable. Concerning the workers at village level, such incentives may not necessarily be in the form of money. If there is a significant local interest in the road (or road section), assistance in the form of tools, construction materials and supervision could be a sufficient incentive to mobilise labour for certain, time limited

work activities. Any long-term input from voluntary labour is very difficult to sustain.

The use of community self-help in the form of unpaid labour is an issue which is often susceptible to simplistic solutions. An argument often heard is that rural roads are built specifically for the benefit of the people and they should therefore shoulder the responsibility for maintaining the road.

One has to remember that roads are built to carry vehicles and in most cases also cater for other types of traffic in addition to the villagers living along the road. The road users may also consist of long distance traffic, government service providers, commercial enterprises such as merchants, contractors, logging companies and others conducting business in the area.

The communities recognise the benefits from improved access to markets, easier access to government services and better connection to the outside world. Nevertheless, they do not necessarily recognise the individual benefit that will come to them. After all, most of them do not own a vehicle. Many are subsistence farmers and have no real need of roads and markets. Indeed, they may feel that as individuals they cannot see the benefit that



will accrue to them. At best, they may be prepared to maintain the road where it runs through the village but, experience suggests that, they will be unwilling to maintain more than that.

In the majority of cases, however, further inputs in the form of regular cash wages will be necessary in order to establish a continuous and sustainable maintenance system. Regular and sustained inputs can also be commercially negotiated with individuals, villages and village organisations (youth organisations, farmers associations, etc) acting as petty contractors.

In all cases, it is advisable to use the local government administration in the setting up, implementation and monitoring of locally based maintenance approaches. In

order for the maintenance organisation to be sufficiently responsive to the demands of the network, it is crucial for its success that the organisation is decentralised to where the roads are located. Furthermore, it is important that sufficient authority is vested into the local institutions, enabling them to promptly take necessary decisions and action when required, and when doing so, ensuring that they have access to the required resources for carrying out the works.

Management of road maintenance is after all a technical skill which needs to be provided through a specialised agency. Combined with such skills, the staff in charge need to possess good experience in contracts management, work planning, budget preparation and accounting. In addition, the agency in charge needs to

have adequate office facilities, transport and field allowances to allow them to effectively carry out their duties. Funds for rural roads therefore need to be directed to and controlled by the local authorities, as they would be expected to manage and supervise the works. This implies that contracts are managed at local level and that funds are available for payment of works, based on agreed annual work programmes. On the basis of progress and expenditure reports, funds are replenished in a timely way and on a regular basis.

An ideal road maintenance system, making optimum use of local resources, would most likely comprise of several of the maintenance alternatives indicated in the figure above.

In summary, the best maintenance approach for a particular road would be determined by:

- ❖ level and type of maintenance service required, which in turn depends on the function and purpose of the road),
- ❖ the local interest in the road, and
- ❖ the availability of local labour, equipment, finance and technical supervision.



## 4.3 Organisation of Rural Road Maintenance

Besides the choice of approach and implementation strategies, the type of maintenance activities can also influence the organisational setup. An effective road works organisation needs to cater for all categories of works covering routine, periodic and emergency maintenance. Each of these categories of works require different organisational setups.

The organisation needs to be structured in a manner so that it (i) is able to cope with routine maintenance at all times, (ii) has enough capacity to carry out periodic maintenance (including contracts supervision), and (iii) has sufficient extra capacity to cater for suddenly appearing emergency works.

The organisation for routine maintenance and in particular its management and supervision, needs to be carefully designed in order to meet the specific characteristics of such works. Although routine maintenance consists of fairly simple work activities, requiring no sophisticated technical skills (i.e. bush-clearing, clearing drains and culverts, pothole patching), it does however, demand a cadre of well trained maintenance inspectors.

These are the key staff who carry out important tasks such as visiting the roads to examine their condition, supervising works, ensuring quality standards are adhered to, measuring completed works, and ensuring that payments are processed in a timely manner (ref. Job Description below). To actually achieve this in a timely and efficient manner requires a highly decentralised organisation with qualified staff stationed at strategic locations in relation to the road network.

### Tasks of the Maintenance Unit

**Inventory:** recording all components of the road network, their main characteristics and current condition.

**Inspection:** examining the road network and measuring and recording its condition.

**Determination of maintenance requirements:** analysing effects, their causes; and specifying what maintenance activities are needed to rectify them and delay any further deterioration.

**Resource estimation:** deciding the work that has to be done and which works take precedence if resources are limited.

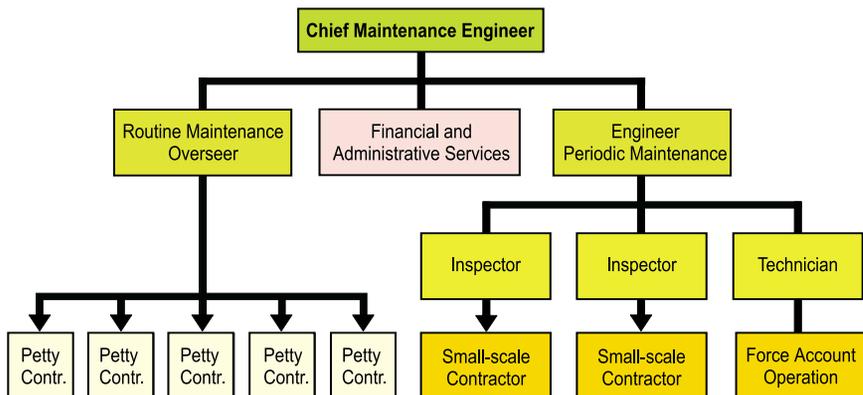
**Work scheduling and implementation:** timing and controlling the works implementation, preparing contract documents, award and supervision of maintenance contracts.

**Monitoring:** checking quality, progress and effectiveness of works.



The figure below describes a provincial/district road maintenance unit catering for routine, periodic and emergency works. As can be seen from the chart, there is no specific staff assigned to emergency works. Normally, the staff requirements for this activity would be drawn from the regular resources assigned to routine and periodic maintenance. When sudden damages occur to the road network and emergency works are required, it is common practice to reduce regular activities to a minimum and thereby release sufficient resources to address the emergency works.

The key personnel in this organisation are really the routine maintenance overseers. These are the persons who actually monitor the condition of the roads, and ensure that timely provision of preventive maintenance take place. Providing this staff with the required resources and sufficient work motivation will allow them to execute their work in an effective manner and thus ensure that maintenance work is carried out to optimal levels. This will have a significant impact on the lifetime of the roads and reduce periodic maintenance requirements. The following table describes the duties of the routine maintenance overseers.



## Job Description - Routine Maintenance Overseer

### General:

The *Maintenance Overseer* will participate in the "Local Authority's" efforts of providing adequate and timely maintenance of rural road roads. This involves the inspection of roads, preparation of annual road maintenance budgets and workplans, the recruitment of petty contractors to carry out the physical works, provide on-the-job training and work guidance to petty contractors, inspecting and certifying completed maintenance works and following established technical, administrative and financial procedures.

### Main Responsibilities:

The main duties and work responsibilities of the Maintenance Overseer consist of:

- ◆ inspection of the condition of all maintainable roads, inventoring deficiencies and estimating remedial maintenance works,
- ◆ estimating annual rural road maintenance budgets and preparing annual maintenance work plans based on the above mentioned field surveys,
- ◆ prepare detailed workplans and cost estimates for each of the rural roads placed under maintenance,
- ◆ prepare contracts documents for routine maintenance works to be carried out by petty contractors,
- ◆ estimate required inputs and costs of tools and materials for maintenance,
- ◆ assist in procurement of tools and gravel supply for maintenance purposes, including contracts documents preparation, award and supervision,
- ◆ identify and select potential petty contractors in the areas in close proximity to the roads,
- ◆ award and negotiate routine maintenance contracts,
- ◆ ensure that appropriate handtools are issued to the petty contractors,
- ◆ instruct and train the petty contractors in correct and efficient execution and organisation of works,
- ◆ monitor and supervise the implementation of works by the petty contractors,
- ◆ measure and issue payment certificates for completed works,
- ◆ maintain physical progress and cost records of all maintenance works, including labour inputs, tools, materials, and other costs,
- ◆ continuously monitor the effect of ongoing maintenance works as compared to the condition of the road network, and introduce when required revisions to the overall maintenance workplan,
- ◆ monitor the effects of intensive rainfalls or other extreme wear and tear to the road network, and initiate emergency maintenance measures as and when required,
- ◆ monitor and evaluate the effectiveness of work methods, system and procedures, and, if necessary, propose and introduce changes which will further improve the efficiency of the system,
- ◆ liaise with local authorities and villagers on administrative matters relating to the maintenance works (e.g. security, use of borrow pits, recruitment of petty contractors, maintaining road barriers and other road furniture, stockpiling laterite, etc.),
- ◆ liaise with local authorities and the road users on the proper maintenance and operation of the roads (speed and weight limitations, reporting, importance of emergency maintenance, etc.)
- ◆ carry out any other administrative or technical work as directed by the Chief Maintenance Engineer.

### Reporting:

The Maintenance Overseer reports directly to the Chief Maintenance Engineer. He/she will provide inputs as requested into the established management system.

### Duty Station:

The Maintenance Overseer will be based in the Rural Road Works Unit of the "Local Authority". He/she will be expected to make frequent visits to the areas where the road maintenance works are located.

## 4.4 Asset Management

It is often said that whilst maintenance does not cost very much, the lack of maintenance costs a great deal, in terms of the loss of capital investments. In a decentralised system, budgets for infrastructure maintenance are often either ignored or identified as one time payments, not as a recurrent cost. This is understandable in a cash deficient system which is under pressure from local politicians to show solid achievements of newly constructed infrastructure.

There is therefore not only a problem of financial management but also and perhaps more fundamentally, a problem of understanding the concept of preventive maintenance. Instead of dealing with maintenance as a repair activity once serious damage has occurred, it

is important to convince local leaderships of a more cost-efficient approach by introducing the concept of preventive maintenance, i.e. by preserving the infrastructure in a good condition, the need for repairs will be minimized.

Attempts by international agencies to highlight the problem of lack of maintenance have had very mixed results. One initiative that does provide some hope is that of asset management. Evidence from several countries shows that where the local authority is able to recognise the value of the infrastructure assets that they have and the loss of value of the assets, caused by the lack of maintenance, they respond much more positively to placing emphasis on maintenance.



# Chapter 5

## Financial Management

### 5.1 Funding Sources

Funding for rural infrastructure works are either generated at the local level through local taxation or by transfers from central sources. Local taxation is normally through user fees and tolls, licensing and permits. In addition to regular government sources, fund transfers from the centre also include donor funding and loans from international development banks.

Local revenue collection is often very limited, and therefore local authorities are in most cases dependent on budgetary support from the centre in order to sustain a certain level of activity.

Budgetary support from the centre comes in various forms with different purposes. Some funds may be allocated in their entirety for the payment of specific activities, i.e. payment of staff wages, allocations to a specific programme, such as a



## Financial Management

disease eradication programme, road maintenance, etc. Other fund transfers can be non-specific block allocations for which the local authorities are allowed to freely define the use.

The majority of funds allocated from the centre to finance the provision of basic services in the rural areas are sector related and come with a string of conditions usually defined by some central authority. Allocations for the provision of rural roads would have to adhere to certain defined selection criteria, work standards, procurement procedures and maintenance arrangements. The provision of primary health infrastructure would need to follow a similar set of standards, developed by some central health agency. In addition, the various funding agencies may prescribe an additional set of (sometimes conflicting) rules.

In a number of countries, where decentralisation is perceived as having reached advanced levels, the local authorities often have

to compete for work and funding with centralised agencies. Centrally based special works programmes, agricultural sector support programmes, and others, are often awarded to central agencies, which execute them from a central management organisation, despite the fact that such responsibilities have already been delegated to local authorities.

Both the argument and reasons for such arrangements are well known and so are the effects. Despite the overall intentions of the government, central agencies rarely have a desire to decentralise work activities (and funding), and running special programmes has proved to be an effective way of slowing down the decentralisation process. The argument for effectively keeping services centralised is that such programmes are too large and need to be implemented within a short period of time, for which the local authorities does not have sufficient implementation capacity.

## *Rural Road Plan in a Jam*

**Times News Network**

NEW DEHLI: Nearly a year after the scheme was formally launched, the Centre has been unable to work out some “crucial aspects” for the proper implementation of the ambitious Pradhan Mantri Gram Sadak Yojana. The yojana aims at providing road connectivity to all rural habitations with a population of more than 500 persons by 2007.

Sample some of the details, the Union ministry of rural development is still struggling to work out — the method of releasing funds for the scheme, the manner of release of funds to the state governments, the identification of institutions which will provide technical assistance in the states, the incentives/disincentives to be given to the districts/states, the data on villages which have difficult terrain and the preparation of district rural road plans.

Pointing out these and other shortcomings, the parliamentary standing committee on urban and rural development in its report presented to the Lok Sabha on Wednesday says: “The committee regrets to note that though the sadak yojana was announced in March 2000 and formally launched on December 25,

2000, the parameters for implementation of the yojana are still to be finalised.”

The standing committee has suggested that the parameters be finalised without any further delay in order to “prevent any diversion of funds by the state governments”.

The committee’s fears on diversion of funds aren’t unfounded since this is often the case where money allocated for rural development schemes is concerned. So in this case, the committee has suggested that the Centre should monitor the utilisation of funds by the states to ensure money is used for the purpose it is meant.

The committee has also pointed out the irony of the situation in that though the scheme is called the gram sadak yojana, “yet the role of the gram sabha and the gram panchayat in planning and implementing the yojana is negligible”. What’s more, though the gram panchayat finds itself out in the cold where planning and implementation of the scheme are concerned, “they have been burdened with the maintenance of the roads without ensuring their financial capacity to perform such a vital task”.

*Times of India, 21 December 2001*

## 5.2 Public or Community Works

Before venturing into the subject of financial management, it is important to make a distinction between public works and community works. Although local government authorities are often involved in both type of schemes, the funding responsibilities are significantly different. Equally, the responsibility for operation and maintenance will depend on whether these are a public or community owned assets.

There is no sharp dividing line between community works for the general benefit of the local population (e.g. a village water supply or feeder roads), and those for the benefit of specific user groups (e.g. irrigation schemes). The main distinction

between public and community works depends on whether or not the workers are also the exclusive beneficiaries or whether the works serve the public in general in addition to the people engaged in the works. For example, a district road will provide access to the rural population along the alignment, however, it will also serve a much wider audience in the form of traffic to other more distant communities, and for this reason, one would argue that works related to the operation of such infrastructure would be a public responsibility.

As a result of the limited financial resources available to many local government organisations for infrastructure



### Definitions

The traditional term “public works” implies governmental responsibilities for the provision of basic economic and social services to the general public, at both national and local administrative levels. It also implies the use of official channels and government control of the funds allocated for such works. The works themselves, however, may be undertaken either by public agencies or under contract by private firms.

Community works, on the other hand, are undertaken in response to demand by, and for the benefit of, specific local groups; and they usually include elements of self-help, although responsibility lies primarily with local institutions representing the interests of the intended beneficiaries as regards such essential needs as water, food, energy, shelter, health, education, transport, access to services, etc.

*Watzlawick and Gaude, International Labour Review Vol. 131*

development work, local institutions may take the initiative to mobilise self-help schemes for community works, which in some cases are similar to the public services which elsewhere are provided by local government.

This type of remedial action has been successful for certain types of infrastructure, while in other sectors (e.g. road maintenance), such efforts have proven to be impossible to sustain at the level of input required. Obviously, the provision of public infrastructure at local level needs to be backed up with the necessary means for the local authorities to provide these services. Great caution should be taken with regard to leaving the financing responsibilities with the users for services which are provided by the government elsewhere (e.g. water supply in

developed settlements in urban areas). It is also important to avoid situations in which government authorities resort to self-help schemes to justify using unpaid labour due to budgetary constraints.

Although the responsibilities of local authorities are primarily related to public assets, local government can play an important role as facilitator of community financed and initiated works. Providing the communities access to the technical and managerial capacity established within local government may lead to improved efficiency of the community driven works. A good example of such advisory services are found in the irrigation sector where technical support is often provided by the government to the farming community.

## 5.3 Fiscal Management

The major argument used against decentralising authority is that the devolved body will not be capable of effectively managing the finances. The argument is often circular. It is argued that the local authority cannot handle the funds, however they will never develop the capacity if they are not given the opportunity to take on such responsibilities.

The most common weakness in financial management systems is actually a lack of capacity, which is often related to poor procedures and inexperienced staff. Contrary to common belief, it is not the misappropriation of funds, but rather the lack of or poor accounting of funds which results in the shortcomings of finance and accounting systems in local government institutions. Nevertheless, it is a major challenge. There is the question of the development of effective financial procedures at the local authority level and there is the issue of the organisational arrangements and responsibilities.

### Cash Flow

The financial system required is not only limited to procedures at local level. It also encompasses procedures for cash flow arrangements from

the various sources of funding, coordination of the release and the authority to instigate the release of funds.

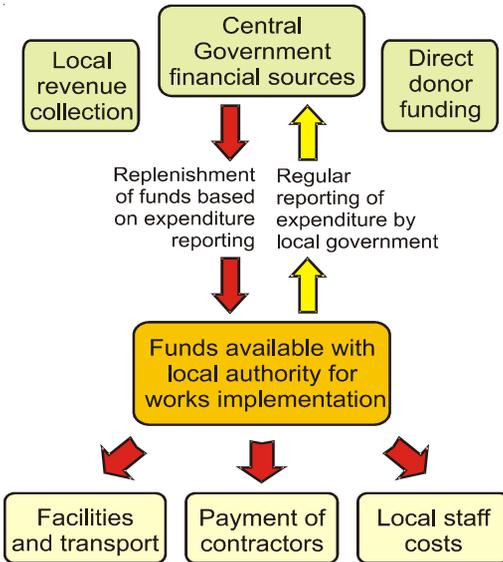
Funds sourced from central authorities need to arrive at local government well in advance of works or commitments in the form of contract awards are carried out. The most common reason for liquidity problems at local government level, is actually the slow and irregular transfer of funds from central level. In order to avoid any disruptions in the cash flow, experience show that the funds need to be made available three months in advance.

In order to safeguard this vital issue, there is obviously a need for appropriate procedures for preparing cash flow projections, requesting the funds well in advance and ensuring that they arrive on a timely basis and at regular intervals.

### Accounting

Proper and timely accounting provides the basis for projections of expenditure and cash flow requirements.

Accounting procedures can be established using computerised methods or "paper-based" systems. The accounting



system needs to meet the reporting requirements related to (i) the various types of work carried out and (ii) the specific reporting requirements of various funding sources.

Specific programmes or projects may not only require separate reporting, but also separate accounting and dedicated accounts. Such arrangements not only improve the transparency in funds management but also improves confidence with donors and central government in terms of local level financial management capacity.

### Payment of Works

As compared to force account operations, the use of contractors involves a substantial reduction in the number of financial transactions for local

accountants. When carrying out works through force account, all details of expenditure are left with the accounts unit of the local authority. With the use of contractors, this level of detailed accounting is effectively privatised. Works completed by contract are normally paid on the basis of measured quantities, summarised in monthly payment claims, involving one single payment transaction each month to be processed by the local government finance unit.

When working with contractors, all financial transactions should be carried out through the use of private banking facilities. Payment of works should be carried out by bank transfer or by cheque, thereby minimising the amount of cash handling.

When managing petty contractors, payments may need to be issued in cash since these "firms" may not necessarily have access to banking facilities. To the extent possible, also these contractors should be encouraged to conduct their business through banks.



## 5.4 Work Incentives

As part of the civil service, public works departments are often plagued with dwindling budgets of their recurrent activities under which provisions for maintenance works is often posted. Even with the limited resources available, there are often very few incentives for the staff to manage these resources in an efficient manner.

In several developing countries, government salaries have been reduced to levels below the minimum at which the staff can provide for themselves and their families. Monthly wages in the order of US\$ 20 - 40 are commonplace in a number of countries. It is also interesting to note that such low wage levels also exist in countries where government spending is fairly substantial, leaving staff budgets out of proportion with budgets covering the work

programmes.

This situation is not unique to public works agencies. It relates to a general trend in the entire civil service of the country and therefore clearly implies that civil service reform is desperately needed. As part of such reforms, attempts have also been made to privatise some of the services and responsibilities of the government. By transferring implementation authority to contractors, technical staff involved in public works are employed by the private sector, where wages can easily be adjusted to reflect real market rates.

Obviously, this would be the appropriate approach, however public service reforms are time consuming and beyond the control of public works agencies. Furthermore, there are limits to the extent to which



public services can be privatised. After all, infrastructure provision is a public service and, to some extent, the management of infrastructure assets needs to be taken care of by the owners of the assets, i.e. the government - either at central or local level.

Recent trends in the road sector to increase the involvement of private contractors in works execution have to some extent addressed these issues, since private construction firms are in a position to offer competitive salaries and wages to their staff. As a result of their increased participation previous arrangements with large force account work units have been disbanded and the actual government work force involved in road works has been reduced.

However, there is still a requirement for government to maintain an organisation to manage works carried out by contractors. For the main road network, a popular solution, which to some extent address the issue of proper staff incentives, has been to create an autonomous semi-private road agency. For local infrastructure, managed by local authorities, solutions are still being sought. Some countries have provided local authorities with the mandate to freely define staff policies and terms of employment. In most

countries, however, decrees issued from the central government still dictate the conditions of employment also for local government staff.

A common remedy, particularly in donor financed projects, has been to introduce various forms of allowances. These may take the form of straight forward supplements to the staff salaries, or in the form of allowances for specific activities such as travel, participation in or assistance to training activities, transport subsidies, etc. What is common in all such arrangements is that this additional income becomes the majority of the income earned by the staff, and as a result, they do not need additional income/earned from economic activities outside the organisation.

Regardless of whether this is the right approach, it is clear that such allowances do address the needs of the staff, and thus provide the incentives which lead to a significant change in commitment and involvement of local staff in the tasks for which they have been employed. Equally important is that such arrangements are not very costly, and are far more effective than importing manpower from outside the organisations (i.e. local consultants and/or international experts).



# Chapter 6

## Training and Technical Assistance

### 6.1 Purpose of Training

All the issues discussed previously will at some stage require a certain element of training in the process of developing capacity within the local government institutions. A number of the identified issues will be new to the various key players and their staff members. For a large portion of these staff members, the introduction of new management systems and implementation arrangements involves major changes in their individual job responsibilities and duties. It is therefore vital that during the decentralisation process, a major programme of training is developed and implemented by the agencies in charge, covering administrative, financial and technical subjects.

Before commencing any training, there are a number of activities which needs to be completed. The first step is to





ensure that all procedures in the management system have been properly worked out. As

part of this process, there is a need to closely evaluate the existing organisations both at central and local level in relation to their suitability and current capacity to take on the new responsibilities. This exercise needs to clearly identify the performance requirements of the various key players both in government as well as in the private sector. Duties and responsibilities need to be clearly defined for the institutions as a whole and individually for each category of staff. It is only on this basis that the new staff performance requirements can be established, and the training required for existing and new staff can be determined.

When developing a training programme of this nature, it is important to acknowledge that this is not a one-time event. It is rather the start of a long term training service which not only strengthens capacity, but also contributes to sustain this capacity within the targeted organisations.

The effect of targeted skills-oriented training have both immediate and long term benefits:

ture rehabilitation and maintenance works. This implies that the firms are fully conversant with the

✧ **An instrument of policy and change**

An effective mechanism for introducing policy change and new management procedures. Training and related activities are the main vehicles for presenting new arrangements to the staff of the agencies concerned.

✧ **Quality assurance**

The most effective form of quality assurance is provided through well trained and motivated staff who know how the work should be carried out and who take interest in ensuring that completed works meet the established quality norms.

✧ **Developing the organisation's culture**

Training sessions provide a good opportunity for raising awareness of policies and strategies, improve understanding of key implementation issues, future goals and ambitions of the organisation.

✧ **Accelerated development**

Training and technical assistance enables more staff to carry out tasks previously done only by more senior personnel or only by others (outside the organisation).

✧ **Morale and staff retention**

A lack of training opportunities or inadequate training leads to job dissatisfaction and low morale.

✧ **Recruitment**

Providing good in-house staff training opportunities helps attract high quality staff to the organisation.

✧ **Correction of individual deficiencies**

In addition to developing the skills needed in staff generally, training can be used to address specific deficiencies in the delivery of works.

A training programme related to rural infrastructure works would have four main objectives, namely:

- ✧ Develop a local capacity for training government and private sector staff in rural infrastructure rehabilitation and maintenance - using appropriate technology.
- ✧ Establish a cadre of domestic contractors capable of undertaking rural infrastruc-

ture rehabilitation and maintenance works. This implies that the firms are fully conversant with the technology, contract management, business administration and supervision of labour, tools, equipment and materials;

- ✧ Create a capacity within the government to plan, design, monitor and evaluate rural infrastructure works programmes;
- ✧ Create the capacity to administer and supervise works carried out by local contractors.

## 6.2 Training Strategy

A key concept in training programmes for rural infrastructure works is to provide training through a combination of formal classroom training and practical on-the-job sessions. Technical assistance should be made available to provide training, guidance and advisory support in all aspects of works implementation in order that the key players become fully conversant with, and capable of carrying out their respective duties.

In order to achieve the above described objectives, training needs to be provided to the following audience:

- (i) technical staff including district engineers, planners, technicians, supervisors and administrative staff,
- (ii) local government staff including senior managers, planners and programme coordinators,
- (iii) contractors' staff including the managers and their supervisory staff,
- (iv) representatives of the local communities, policy makers, planners and administrators, and
- (v) local trainers.

Training for the various categories of staff needs to be carried out with varying duration and through different approaches, such as on-site and classroom training, workshops, seminars and practical on-the-job training.

The table below shows the performance requirements identified in a training needs assessment carried out for a rural road works programme:

<i>Performance Requirements</i>	
<b>District Road Supervisors and Engineers</b>	<ul style="list-style-type: none"> <li>◆ Capable of carrying out overall planning, management and monitoring activities related to rural road rehabilitation and maintenance.</li> <li>◆ To be capable of preparing and supervising rural road maintenance and rehabilitation contracts.</li> </ul>
<b>Small-scale Contractors</b>	<ul style="list-style-type: none"> <li>◆ Capable of organising and carrying out rural road rehabilitation works using labour-based work methods.</li> <li>◆ Capable of successfully managing contracts, the company's business, and the ability to organise and control all required assets.</li> <li>◆ Know how to acquire road work contracts including all tendering and pricing procedures.</li> </ul>
<b>Maintenance Inspectors</b>	<ul style="list-style-type: none"> <li>◆ Able to effectively plan, organise and manage routine maintenance of rural roads carried out by local petty contractors using labour-based work methods.</li> <li>◆ Capable of providing detailed on-the-job instruction to and supervision of petty contractors, carrying out routine road maintenance.</li> </ul>

## 6.3 Training Needs

Training needs are not an isolated issue which can be dealt with as a one off exercise. It needs to be continuously assessed during the implementation of a programme. The purpose of the initial training will be to get the initial planning and physical works started. Thereafter, on-the-job training and additional refresher courses need to be arranged to cover areas where the various operators show performance weaknesses.

### **(i) Engineers**

Engineers are required within the local technical agencies/ departments to plan and manage the works programme. Since they are the staff members who are expected to take the lead role in the infrastructure works programme, there is often a considerable training demand among this category of staff. Although this group possess the best academic qualifications, they are often new to rural infrastructure works and, in most cases, unfamiliar with the use of labour-based work methods and other approaches relying on locally available resources. In order for them to act as the resource base as planned, and enabling them to provide the intended technical and managerial services, it is

crucial that they receive training in the field of (i) works technology and (ii) contracts management for such works.

### **(ii) District/Provincial Works Supervisors**

Works supervisors often possess a proven track record in terms of managing small infrastructure works. However, it is important that this category of staff is at least equally conversant as the contractor with all the work methods and technology which is applied in the works programme. Since the nature and content of the work programmes varies, it is essential to make regular assessments of the ability of this category of staff to provide effective supervision of various types of work. In most cases, there is a demand for training in the field of contract management. Their previous work experience has often been in a force account environment, and therefore they need to be retrained in their new role as contract managers.

### **(iii) Administrative and Financial Staff**

The local government authorities need to be trained in their newly assumed role as the client of the infrastructure works. This implies that they

need to be fully conversant in the obligations as stated in works contracts, particularly in terms of timely payment of the contractors.

They also need to possess the skills necessary to account for the funds, and ensure that there is a timely flow of funds reaching the local authorities in time to meet the financial commitments taken on by awarding works to local contractors.

**(iv) Small-scale Contractors**

The training programme also needs to cater for capacity development in the private sector. The work experience and formal training background of local contractors need to be identified through interviews with their staff. Local contractors come in various configurations and size, some with a wide field of competence while others specialise in providing a limited number of services. Their staff configurations are also varied. In addition, the type of works in a specific contract will often determine the type of skilled staff the contractor decides to allocate to the job.

The detailed content and extent of a training programme can therefore only be finalised after the final screening and selection of the appropriate category of contractors.

However, based on the nature of the infrastructure works envisaged it is still possible to identify the main topics which need to be included in a training programme.

Most construction firms will have employed or have access to the services of an engineer. Smaller firms may, however, choose to use a skilled technician with several years of relevant experience. In addition to this lead technical staff, the contractors normally employ foremen, supervisors, gangleaders, plant operators, artisans and other skilled and unskilled workers. In order to secure the right quality of works, it is important that all this staff are properly trained and master their individual duties.

If labour-based works technology is to be used, it is important to note that most of the contractors will have a limited background and experience with managing a large group of workers as well as carrying out works using this particular technology.

Furthermore, if programme is introducing new contracting procedures these will be new for all parties, both the contractors as well as the staff in charge of managing the contracts.

**(v) Petty Contractors**

For petty contractors, in most cases intended for routine road maintenance works or other similar labour-only contracts, training can be provided entirely through practical on-the-job training with detailed instruction provided by the staff in charge of inspection of works.

Although this category of contractors may not require formal class-room training, this task should not be underestimated. It is important to bear in mind that this group are recruited from the part of the rural population where academic levels are likely to be particularly low. This implies that the training

delivered needs to be practical and mainly based on oral instructions and a timely and regular follow-up of their work.

Finally, it is important to fully acknowledge the important role of the maintenance inspectors in charge of both work supervision and delivering the training to the petty contractors. This staff form the back bone of the maintenance organisation, and the efficiency of the organisation will be highly dependent on the capacity of these staff. For this reason, it is imperative that any capacity development requirements, including training are carefully assessed for each group of professionals.

**Road Maintenance Inspectors**

Despite the fact that routine road maintenance cover far simpler work activities than rehabilitation works, it is important that maintenance inspectors fully appreciate the functions of the various components of the road structure, and in particular the drainage system. Without this level of knowledge, it will be difficult to delegate the responsibility for the regular maintenance of the roads to this cadre of staff.

Maintenance inspectors therefore need proper training in road works technology, at the same level as technical staff assigned to supervision of rehabilitation works. Equally, their exact training needs can only be determined after appropriate candidates have been identified. Some may have previous relevant experience, while others may be entirely new to this field and require a more comprehensive introduction.

Furthermore, the inspectors will also be in charge of activities such as the assessment of maintenance requirements, preparation of new contracts, supervision of works and issuance of payment certificates. All these activities may follow newly introduced procedures, and will therefore require specific training sessions.

## 6.4 Content of Training

Training is always an effective up-front quality assurance measure. Experience shows that there is a great demand for training in technical subjects, both for the contractors' staff as well as the government staff in charge of work supervision. Effective training in rural infrastructure works programmes involves both the introduction of new technology as well as in-depth studies of the particular skills required in each position in the works organisation. As the training content for these reasons relate to practical hands-on skills, the training often consists of dissemination of best practices and work methods which have been proved most effective in projects with similar tasks and working conditions (i.e. neighbouring countries, provinces, pilot projects, etc).

### Works Technology

When technical training needs have been identified, it is in most cases required for all cadres of skilled staff at the works sites, covering engineers, technicians, supervisors and foremen. Training should preferably be carried out in a real situation, focusing on purpose-oriented skills training methods. Training is more effective if conducted with

real examples and best in an environment of learning by doing. For this reason traditional classroom training should be supplemented with full-scale demonstration sites and an apprenticeship period (i.e. trial contracts).

The technical training needs to be based on the existing standards and quality norms prescribed by the respective technical authorities. The training should reflect commonly applied, work methods which have proved effective in the prevailing environment of the region/country. The table below describes the technical course contents in a rural road works programme utilising labour-based work methods.

Technical training should act as a supplement to the prior training and experience the



<i>Subject</i>	<i>Contents</i>
<b>Planning</b>	How a labour-based road works programme is planned at different levels, planning responsibilities of the various levels of staff, work plans, organising works and site camps, planning of tools, recruitment and organisation of labour
<b>Reporting</b>	Administrative control of a work site, production and quality control
<b>Work Organisation</b>	Sequence of work activities, gang balancing, instruction and supervision, and incentive schemes
<b>Tools and Equipment</b>	Selecting appropriate tools and equipment, how they are handled, their use and maintenance, balance of equipment and labour, and store-keeping
<b>Surveying and Setting Out</b>	Setting out horizontal and vertical alignments, cross sections, curves and how to use various setting out equipment such as profile boards, templates and string line levels
<b>Clearing</b>	Clearing the alignment of vegetation and boulders
<b>Drainage</b>	The importance of a well functioning drainage system, how to construct side and mitre drains, road camber, catch water drains and scour checks
<b>Earthworks</b>	How to measure and estimate earthworks, the organisation of excavation, leveling, hauling, loading, unloading, filling and spreading, compaction and erosion control
<b>Compaction</b>	Simple soil mechanics, optimum moisture content, indirect and natural compaction, direct compaction and the effective use of compaction equipment
<b>Graveling</b>	How to organise graveling and testing of gravel quality
<b>Maintenance</b>	The organisation of the various activities on routine, periodic and emergency road maintenance, and the required tools and equipment
<b>Structures</b>	Rehabilitation and maintenance of bridges, drifts, causeways and culverts

technical personnel has already acquired. Since the staff in question normally possess the required academic background, and in most cases possess some experience from the field of work in question, the technical

training arranged within the framework of a rural infrastructure works programme can be limited to address the specific performance requirements of their current job positions.

<i>Subject</i>	<i>Contents</i>	<i>Trainees</i>
Contract Management	Bid preparation and submission, unit rates, estimating, contract documents, condition of contract, claims, payments, liability period	Contractors' staff
Contract Preparation and Supervision	Estimating, tender announcement, bid opening and evaluation, contract conditions, claims, preparation of payment certificates, processing payments, work inspection, contract administration	District Engineers and technicians, maintenance inspectors, administrative and financial staff

### **Contracting Procedures**

If new procedures are developed for contract management, both the contractors and the government staff need training in how works should be contracted out. Often, private contracting is introduced as part of improving the overall provision of infrastructure works services. All parties to the contract will then need comprehensive training in contract procedures from bidding, contract award and finally supervision, measurement and payment of works, as described in the table above.

Contracts for routine maintenance are considerably smaller and of a more repetitive nature and therefore the contracts management system should follow more simplified procedures. As such, procedures are different from those applied for new construction and rehabilitation works, so this work requires separate training. For periodic maintenance, the

contracts management systems developed for rehabilitation works can be applied.

### **Preventive Maintenance and Operation of Tools and Equipment**

Although contractors are more motivated, and therefore more efficient in preventive maintenance and correct operation of equipment, it is always useful to include this topic in a training programme.

In many cases, the contractors will need to acquire new types of equipment which they are not familiar with. In order to avoid frequent breakdowns of the equipment and ensure that the equipment is operated in an effective and correct manner, it is useful to provide training to address these issues.

### **Business Management**

Contractors need to establish proper accounting and business management procedures when expanding their operations.

For many contracting firms, their participation in programmes of this nature may involve a considerable increase in their operations and annual turnover. These concerns are also related to the pricing and tendering exercises, as well as the overall management of the company. The contractor will need to be able to monitor the costs of the various work operations, and with reasonable accuracy be able to predict the costs of the construction activities involved in public works contracts.

It is often the case that neither contractors nor the client carry out a detailed assessment of their unit rates, with a detailed analysis of the

individual cost items, such as equipment, materials, labour and overheads. In order to obtain reasonable and reliable bid prices, it is in the interest of the client to ensure that the contractors participating in a bid competition are fully capable of carrying out such estimates.

In order for them to remain solvent and show a profit at the end of the day, it is important that they acquire proper financial management habits, including the use of banking facilities, preparing cash flow forecasts, monitoring costs, etc.

Training related to business management can be summarised as follows:

<i>Subject</i>	<i>Contents</i>	<i>Trainees</i>
Business Management	Book keeping, profits, budgeting, cost control, cash flow planning, material purchase, personnel management, banking, taxes, labour regulations.	Contractors' managers and project engineers

## 6.5 Training Methods

Staff training requirements for rural infrastructure works mainly relates to real and practical issues such as appropriate management procedures, choice of technology, work methods, contracting and administrative procedures. The most effective way of addressing such training needs is by carrying out the training in an environment which to the extent possible resembles the real situation in which the trainees will eventually operate.

### **On-the-job Training**

It has been proved over the years in a number of countries that on-the-job training is the most effective method of training most categories of both government and contractors' staff. This involves the extensive use of practical demonstrations and skill training at full-scale training sites. This approach is very effective for the training of managers, engineers, inspectors and supervisors with the on-site training being supported by classroom components tailored for the various categories of staff.

Practical training sessions consist of two distinct methods, first where specific skills are practiced in a model



environment, and thereafter in a real situation. In a number of subjects, such as surveying, setting out and work organisation, the initial classroom training needs to be supplemented with practical skills development sessions with the focus on demonstrating the techniques and work methods.

After the initial classroom training and skills development sessions, further practical training should be carried out in a full-scale demonstration situation. This includes establishing training/demonstration sites fully equipped with the same type of tools and equipment that contractors will be using once they have successfully completed their training.

### **Classroom Sessions**

Although training needs to focus on practical skills, which are best taught in the field,

<i>Awareness Creation for Programme Managers/Stakeholders</i>	
<b>Seminar Objectives:</b>	
<ul style="list-style-type: none"> <li>◆ Disseminate information on progress of work and effectiveness of programme strategy</li> <li>◆ Explore further work prospects for the contractors</li> </ul>	
<b>Contents:</b>	
<ul style="list-style-type: none"> <li>◆ choice of technology</li> <li>◆ policy framework</li> <li>◆ the change from force account to contract operations</li> <li>◆ performance of petty and small-scale contractors</li> <li>◆ the role and organisation of the client and the supervising engineer</li> <li>◆ lessons learned</li> <li>◆ potential for replication and expansion</li> </ul>	
<b>Target Audience:</b>	
<ul style="list-style-type: none"> <li>◆ government authorities involved in the road and transport sector, i.e. National Road Authority, Ministry of Local Development, District Assemblies, Ministry of Finance</li> <li>◆ representatives of the domestic civil construction industry</li> <li>◆ donors and NGOs involved in the sector</li> </ul>	
<b>Training Materials:</b>	
Project progress reports, excerpts of training literature, photos of ongoing and completed works, brochures, results of impact studies, sample studies, sample contract documents, etc.	
<b>Duration:</b>	<b>No. of Participants:</b>
1 - 2 days	15 - 30

there is always a demand for a certain theoretical foundation on which the practical skills are placed. For example, experience shows that it is useful to review basic arithmetic and geometry, which in turn is explained in the context of road works technology.

Also for technical subjects such as drainage, soil mechanics, setting out methods and others, there is a demand for an introduction to the subjects in a class-room environment, during which (i) the theory is reviewed, and (ii) a general briefing of the field exercises

is conducted, before the field sessions commence. Furthermore, certain topics such as estimating and tendering are best carried out in a class-room environment.

#### **Short Courses and Workshops**

Intensive refresher courses for periods of one to three days are useful for addressing specific problem areas. Such courses or workshops are organised to supplement on-the-job training for some of the technical and administrative staff. This form of training is also useful for other staff categories such as storekeepers, accountants, pay

clerks and administrative staff, for which the training requirements are more limited.

Furthermore, short-courses can be arranged for contractors in subjects related to business management, such as book-keeping, banking services and calculation of profits.

Short courses can either be arranged through the provision of technical assistance, an in-house training facility, or by contracting other training institutions within the country.

### **Seminars**

Seminars are useful as a means for disseminating data and information, in particular for senior government officials at central and local level, as well as representatives of other government agencies, donors and the private sector.

Seminars can be an effective platform for policy makers, planners and administrators to review the challenges and performance of a rural infrastructure works programme. As an example, the box above describes an awareness seminar arranged in a small-scale contractor development programme, with the objective of expanding the market for local contractors using labour-based works technology in rehabilitating and maintaining rural roads.



A particular programme and its outputs may also have implications for other infrastructure sectors and therefore seminars may play an important role in terms of initiating new collaboration between various agencies and donors.

Equally important, this type of seminar is important in terms of creating awareness of the potential of utilising new organisational arrangements, work methods, and involvement of the private sector, beyond the boundaries of a particular programme. Not only is this an effective way of disseminating experience and best practices, it can also be an important channel for widening the future work prospects for emerging local contracting firms.

## 6.6 Trainers

Providing training to rural infrastructure works programmes is a long term effort, involving the introduction of appropriate technology and work methods to new practitioners, as well as re-training existing staff. In order to sustain such training services in an effective and consistent manner, there is a demand for locating a permanent institutional home for the required training.

Within the context of capacity building, there is often a common acceptance for the importance of training. The resources required to deliver purpose oriented, problem specific training is, however, often underestimated. In order to fully utilise the resources made available for training, it is important that all key players coordinate their efforts in this field. Some form of centralised training organisation can contribute to achieving a well

coordinated and standardised training programme for local authorities.

An important issue with the involvement of the private sector, is that as opposed to the situation during force account days, training services now also need to be extended to the private sector through contractors and consultants.

Training can be provided through different institutional arrangements. A classic approach has been to create in-house training facilities based in the technical line ministries, (i.e. Roads Training Centres in the Ministry of Works and Transport). Such arrangements were common in the past when works were predominantly carried out by force account by a centralised agency. Some of these training centres provided all the facilities such as accommodation, training premises, demonstration work sites, laboratories and equipment fleets.

In a programme with generous budgets, this arrangement could still be applied. However, in many cases it has proved difficult to sustain this type of training centre, in particular when external donor funding is discontinued.



Another argument against this setup is that such in-house training facilities do not interact sufficiently with the rest of the academia in the country. This leads to a certain degree of duplication, since the regular academic institutions are providing training in similar subjects. If the traditional training institutions were more involved in this particular type of training, it would also eventually provide feedback for their regular courses.

With the growing involvement of the private sector, it has been possible to establish working relations with the training services provided to the members of contractor associations and professional societies for engineers and technicians. The strength of this type of arrangements is that the training required in a particular works programme can be housed by existing institutions which already possess a certain training capacity in the subjects required in rural infrastructure works programmes. This type of training is often provided on a commercial basis and for that reason would ideally need to address the real training requirements, and adapt to the specific needs and priorities of various groups of their members.

There are also good examples of parastatal arrangements, where training institutes provide their services on a cost



recovery basis. For this to be fully successful, it is important that all key players in the sector fully subscribe to this arrangement. In order for the training centre to maintain a reasonable market for its services, it is essential that all donors and involved agencies fully utilise the training centre, instead of initiating separate individual training activities.

For a number of subjects, it is possible to identify institutions which already conduct the type of training required. A good example is training in business management, language and computer skills, which in most countries can be contracted out to private institutes.

It would also be possible to involve equipment suppliers in the provision of training in operation and preventive mechanical maintenance of equipment.

As mentioned earlier, it is important that the training

addresses the specific needs of the trainees and directly address the performance requirements of the various categories of staff. It is therefore important that these concerns are carefully considered when formulating training programmes. When contracting out these services to private institutions, it is essential that (i) the specific training requirements are reflected in their course programmes and (ii) the trainers are fully briefed of these very specific training needs.

In order to create a training environment very similar to the future job situation of the trainees, it is often necessary to carry out training in a real environment. A number of technical subjects can only be taught through practical exercises which are best done on a real site (i.e. surveying and setting out, work organisation and equipment operation). For this reason, the training needs to be conducted away from the training centre, in the rural areas where the works are carried out.

Mobile training units have therefore proved to be very effective for rural infrastructure works. Some training centres base a major part of their programme on delivering their services at the location where the trainees work.

Typically, the training centre provides the instructors and some of the audiovisual equipment, while the client organisation arranges accommodation, classroom facilities and field training sites. Such arrangements allow for a good training/production situation, with the advantage of maintaining work progress, since the staff are not absent from the work sites, and facilitates an on-the-job training environment, essential for practical skills training.

The mobile training arrangement is also a very cost effective solution, as the trainees do not need to travel away from their duty stations, and the logistics can be organised by the client organisation. Equally, the use of either the facilities of the local government authority or the private sector for class-room training, reduces the demand for the training centre to maintain such facilities at their own premises.



## 6.7 Technical Assistance

Most rural infrastructure works are part of public works programmes, and for this reason the systems and procedures need to feed into the overall system of the country's civil service. This implies that the management procedures developed need to conform to government procurement procedures, financial regulations and the accounting systems applied by government.

These regulations may sometimes conflict with the performance requirements for a contracts management system for small-scale contracting. Equally, the system required may not necessarily conform to the systems prescribed by an external donor or lending agency. A technical assistance team would be able to iron out such discrepancies without compromising basic procurement principles.

### **Developing and Establishing Systems and Procedures**

Technical assistance to programmes of this nature can be used to develop and establish an effective contracts management system which responds to the specific requirements of a rural works programme. Also, technical assistance is useful for designing and assisting in the conduct



of the training programmes required to equip government staff with the specific skills needed to manage and operate the system.

Once the system has been developed and staff have received initial training, technical assistance is useful for providing support to establishing the system and ensuring that it becomes fully operational within local government institutions.

### **Monitoring and Control of Works**

Through the provision of technical assistance, it is possible to establish a useful yardstick for quality of works and productivity rates during initial works implementation. In a start-up phase, it is useful

to provide the programme with external assistance in order to achieve full levels of production at a desired level of quality.

Also, local trainers have an important role to play in this initial phase, ensuring that the content of the training provided is actually put into practice. Eventually, the technical assistance can be phased out, leaving the local trainers, in close collaboration with the line agencies, in charge of this important function.

### **Ensuring Long Term Sustainability**

The long term sustainability in all the efforts invested in developing a decentralised

rural infrastructure works programme which is conducive to local contracting is dependent on the future budgets of the local authorities and job prospects for the contractors.

Although these firms may perform well in the initial programme, their longevity depends on additional works in the future after the initial programme during which they were trained. The technical assistance team should therefore be charged with the responsibility of liaising with other similar ongoing and pipeline programmes to ensure that the trained firms are allowed access to additional work.





# Chapter 7

## Some Examples

### 7.1 Philippines

The Local Government Code was passed into law in 1991. Under this law not only responsibility but also authority for a broad range of rural infrastructure was passed to the provinces, municipalities and villages. The Code has certain key features:

- ◆ It broadens the taxing powers of local government units and increases their share of national taxes (internal revenue allotment to as much as 40%).
- ◆ It devolves responsibility for certain key services to local governments - tertiary health services, social services, community based forestry, agriculture extension and field research, locally funded public works.
- ◆ It strengthens their regulatory powers.
- ◆ It expands the participation in local governance by allocating specific seats to civil society.



- ◆ It encourages local government units to be more entrepreneurial both by floating bonds and obtaining loans but also by working more closely with and being more receptive to the private sector.

Decentralisation has certainly provided the local government units with both authority and increased financial resources. The Code was the most radical overhaul of governance in the Philippines. Nevertheless, there have been and there continues to be some major challenges.

The financial resources available to the local governments have increased considerably, for example, the proportion of local revenue held at the local level increased from 10% to as much as 40%. However, costs have also increased for the local government units, particularly in terms of devolved staff. Moreover, the national institutions still dominate the allocation of resources.

The central budgets of devolved agencies, such as health and social services, have actually increased and the extra budgetary funds provided to a province by senators and congressmen can often be larger than the total provincial budget. Of more general concern has been the justified emphasis on the process of devolution rather than with the overall development of the concept of decentralisation. Coming from a very centralised form of government, the decentralisation process has often been more concerned with effective devolution rather than an acceptance of the autonomy of the local government units as enshrined in the constitution.

The impact on infrastructure service delivery has in general been positive. Certainly at the lower end of the administrative hierarchy, there has been a concerted effort, supported by NGOs and People's Organisations, to both mobilise and effectively plan the use of



local resources. At the provincial and municipal levels the impact has been mixed. Faced with budget constraints and the continuing top down approach of central government, these local governments have been able to improve their skills but still find themselves the implementers of programmes rather than the channel for planning, selection and authority. Roads are a good example.

Local roads fall under the jurisdiction of the *barangays* (village). Limited improvements in resource availability and some innovative methods for raising tolls have in general improved both the capacity of the barangays and the condition of the network at this level. On the other hand, a significant portion of the funds for the development of provincial and municipal roads is still provided from large donor supported programmes. These

programmes have their own criteria, which are often imposed on the local governments. In addition, the funds available for maintenance of these roads have not increased with the devolution of responsibility.

One of the significant elements of the support to the decentralisation process was the establishment of a specialised institution, the Local Government Academy, within the Department (Ministry) of Interior and Local Government. The LGA had the task of providing training for local government officials on all aspects of decentralisation. Thus the issue of lack of capacity at the local government level was recognised from the start and efforts were made to remedy the situation. As part of its work the LGA provided training in infrastructure planning, implementation and maintenance.

It has been argued that decentralisation affords the potential for a greater use of local resources. In terms of planning, this has definitely been the case in the Philippines. It was recognised that a fundamental problem of the local authorities was their lack of planning capacity. As part of the process, therefore, IRAP was introduced as a simple infrastructure planning tool, with the use of IRAP the access



needs of the rural population were mapped to define priorities in the location of physical infrastructure including rural roads.

This planning tool has now been institutionalised in all provinces of the country. The IRAP process is now consistently applied in the local government units thus ensuring that proposals for investments in rural infrastructure respond to the actual needs of the rural population. Moreover, the planning skills of the local government units have been improved and this has provided them with the means to effectively advise rather than merely implement.

The one area where there has been little impact in terms of the use of local resources has been in the potential for employment creation. There have been many effective labour-based equipment supported pilot programmes. However, these have not been translated into any general acceptance of the technical and economic efficiency of the methods. Rather labour-based methods have been seen as tools of make work programmes or emergency employment programmes. It remains to be seen whether these methods will be more generally adapted as the local government units take on a greater share of the responsibility for infrastructure provision.

## 7.2 Laos

### General

Decentralisation has been initiated in the country and the major concern has been the lack of capacity at the provincial and district levels. Rural infrastructure in general is in very poor condition in Laos and only limited funds are available for maintenance. With low population densities in the rural areas and long distances between population centres, the government is still struggling to connect all its districts with all-weather road access.

A number of foreign development agencies are active in assisting the government in providing basic services to its rural population. The attention given to rural development in Laos during the last 10 to 15 years has required a significant demand for capacity improvements within local government.

This situation has led to the use of IRAP process for the identification of the best use of resources made available for rural infrastructure development. Moreover, given the limitation of funds, it has been necessary to look at local solutions to local problems. This has involved the use of labour-based work methods, the testing of community

contracts for maintenance and the development of local contractors relying on locally available labour and resources.

### Integrated Rural Accessibility Planning

The ILO IRAP Project in Laos provided support to provincial and district authorities and their technical staff to plan for rural infrastructure development through the use of a simple, easy-to-apply and inexpensive data gathering and analysis procedure that takes the households' access to basic goods, services and facilities as a key determinant of development needs.

This was achieved by first developing the Division of Local Roads within the Ministry of Communication, Transport, Post and Construction (MCTPC) as the focal institution on accessibility and rural infrastructure planning, and enhancing the capacity of the IRAP provincial teams, being the conduits of technical assistance to the provinces and the districts.

The planning tools was designed to encourage wider community participation, empower the rural households to make sound decisions and promote coordination with

### Road Access in Laos

Of the total provincial road network of nearly 6,000 km, it is estimated that less than 35 percent is passable in the wet season, and only half of the population have road or river transport access throughout the year. Only 51 district centres of the total of 133 have all-weather access, and 15 have no road access even in the dry season.

On the basis of these figures it is evident that the need for rural road development are enormous and varied. In the rural road sector, the needs are not just for development of village and district roads, but also of provincial roads. In some provinces, the most immediate need is building roads to connect the isolated provinces to the main road network. As the network of rural roads (provincial, district and village roads) is small and in an unmaintainable condition, the needs also include reconstruction of roads to a maintainable state and extension of the network to reach isolated district and major villages particularly in the mountainous regions.

concerned government agencies and departments at local and national levels. The ultimate beneficiaries of the project were members of rural households who need access to basic goods, services and facilities. The immediate beneficiaries were the technical staff at provincial and district levels who acquired the technology by participating in a IRAP hands-on skills-development training programme.

The project started in 1995 and was applied in the provinces of Luang Namtha, Savannakhet, Oudomxai, Luang Prabang, Sayaboury, Sekong, Khammouane and Xieng Khoang. The application resulted in sets of information describing accessibility conditions in the province, villages and districts, which were used in identifying, prioritizing and implementing access improve-

ment infrastructures such as potable water supply, elementary schools, footpaths, health dispensaries and rural access roads.

The project clearly demonstrated how capacity can be built at provincial and district levels with the use of innovative and easily understood procedures for data collection, mapping and analysis. The project produced maps, indicating population centers, location of facilities and how they are linked, of all the villages and districts in the eight provinces covered thus providing additional level of detail to the topographic maps produced by the designated national government agency.

MCTPC, in the document *Strategic Directions for the Development of the Road Sector for 2000-2015*, "sup-



ports integrated rural development and poverty reduction through active participation in the IRAP project and inter-sector coordination”, and will implement IRAP as a tool for planning and prioritisation of investment decisions in the local road system.

The project’s focus on rural roads still supports a multi-sectoral approach as the other sectors are also covered because the Ministry believes that “the socioeconomic benefits of providing road access to rural communities can only be fully realized by coordinating road development with investments on health, support to education and agriculture.”

### **Rural Road Works**

Through the labour-based rural road works project in Savannakhet and Oudomxai, the ILO managed to develop a comprehensive strategy for

construction and maintenance of rural roads in Laos - all implemented through the country’s local government structure.

The viability of these policies and implementation strategies were clearly verified through the road works activities carried out in the two provinces. The main recommendations with regard to the viability of and potential for using labour-based technology in the road sector were summarised in a strategy document <sup>4</sup> prepared for the government by this project. In addition, the project documented how labour-based technology can be applied under the prevalent conditions of Laos in a technical manual.

The success of this comparatively small project is today reflected in the appreciation by the government and the donor community in (i) the appropriateness of applying labour-based works technology and (ii) relying on the local government organisations for the implementation of rural road construction and maintenance works. Today, labour-based road works technology is applied in a number of rural road works programmes in the country - all under the direct supervision of the local authorities.

<sup>4</sup> Strategy Document for a Labour-based Road Works Programme in Lao PDR, ILO December 1996





new guidelines and procedures and staff training.

#### **Contractor Involvement**

An important feature of this project was the involvement of the domestic construction industry in a structured manner with the development of a complete contracts management package tailor-made for the works carried out, combined with a comprehensive training programme for both government staff and contractors. Basically, the project sought to utilise the various types of contracting firms already operating in the provinces. Local builders were engaged on simple culvert works, building contractors were engaged for bridge works, irrigation structures and building works, and smaller petty contractors were utilised for routine maintenance of rehabilitated roads. Construction firms with some limited experience in carrying out civil works were trained and engaged in

road works construction utilising labour-based appropriate technology. The contractors trained for rural road works have subsequently been able to tender and win contracts for other infrastructure works outside the RIIP.

#### **Results**

The results have been encouraging. Due to the decision made to decentralise full implementation authority to the provinces, the government has in effect created independent works agencies (one in each province), and thereby managed to quickly establish an impressive implementation capacity. This capacity was further strengthened by the involvement of the locally based private construction industry.

Local engineers and administrators have proven themselves well able, after some training, to administer contracts, and local contractors have responded well to the training provided including labour based techniques and business management.

In terms of physical works, all envisaged outputs were completed in advance of the originally planned schedule. Commencing works in 1998, all 600 km of rural roads, markets and other infrastructure construction and rehabilitation were completed before 2002,

well within the original budget estimates. The road works also included the construction of 988 culverts and 98 small bridges. The quality of work has been proven through the solid resistance the created assets have shown during the major floods, that Cambodia has experienced over recent years.

This has now been clearly acknowledged by both the World Bank and the Asian Development Bank, which have been significantly increasing their lending programme to this sub-sector in Cambodia. They are now comfortably vesting the implementation authority with the Ministry of Rural Development, hoping to tap into the successful experience of RIIP. This is clearly illustrated through the fact that since the RIIP started, this Ministry has taken on the management of the similar programmes, i.e. the Emergency Flood Rehabilitation Programmes of both the WB and ADB, thereby expanding the initial programme into 16 of the 23 provinces of the country.

In addition, both development banks are currently supporting the Government in launching a number of new rural infrastruc-

ture investment programmes. In all the new programmes, the government has decided to apply the implementation arrangements of the RIIP. Key features in this policy is the use of labour-based works technology, decentralised implementation authority, appropriate contract management procedures, purpose—designed for rural infrastructure works, sound financial management and full involvement of the private sector.

### **Maintenance**

A major concern was the future maintenance of the improved infrastructure. Cambodia, like many other developing countries, has a rather lackluster track record when it comes to maintaining its road network. Therefore, the project developed a full maintenance management system at an early stage, which was installed immediately when the first roads had been completed. As a result, the rural roads can now boast the best maintenance programme in the country. This system, based on petty contractors recruited in the vicinity of the roads, provides the regular maintenance work required to keep roads open through terrain which floods on an annual basis.



# Chapter 8

## Lessons Learned

### 8.1 Effects of Decentralisation

In recent years, there has been a general trend world wide to decentralise government functions and services directly related to the local communities. The motives behind this trend have generally been political decisions to introduce more democratic forms of management of public assets and services at local level, and to improve the efficiency in the management of resources allocated to provision of rural infrastructure assets and services.



Decentralisation as such does not provide the solutions for effective provision of rural infrastructure. On the other hand, it does provide certain opportunities for improving services, which can be effectively exploited, if issues such as capacity, authority and timely funding are addressed in an adequate manner.

For planners and managers, the real issue is therefore not whether this process is appropriate for the purpose of rural infrastructure provision but rather how such programmes are best organised within the framework of the responsibilities and authority currently being vested with the local government structure.

Work carried out by the ILO, amongst others, to provide a comprehensive approach to capacity building for improved service delivery indicate that the potential exists to introduce a framework for infrastructure development which both responds to the actual needs of the rural population and can be effectively administered by local officials.



## 8.2 Responsibility with Authority

The decentralisation of responsibilities *and authority*, which is also essential for local decision-making, is a key factor for the successful implementation of geographically dispersed works in rural infrastructure improvement and maintenance programmes.

In order for the local authorities to function properly in their role as the main service providers, it is crucial that

they possess both the financial and professional means of fulfilling this function. In the past, this role was often vested with centralised organisations, leaving local institutions with limited resources and responsibilities. The current drive to delegate authority to local government needs to be carried out hand in hand with a transfer of the required resources.

## 8.3 Division of Responsibilities

There has to be a clear definition of the roles and responsibilities of each level of the local administration for the range of activities involved in developing and maintaining local infrastructure. Not only does this apply to the relations between central and local government, but also in terms of divisions of authority and responsibilities between locally elected bodies, local administrations, technical agencies, development committees and others.

The degree and form of decentralisation varies from one country to another and needs to be designed to meet the specific requirements of the works and services to be

provided. There are a number of key features which are required in order to effectively plan and implement rural infrastructure works with sustainable results. These are appropriate choice of technology, identification of correct interventions, i.e. meeting user performance requirements, adequate works supervision and management, timely and sufficient levels of funding and others. All these issues need to be considered when identifying an effective organisational structure at the same time as ensuring the participation of the future users, local authorities as well as involving the local construction industry.

## 8.4 Appropriate Levels of Decentralisation

Local level authority needs to be clearly divided between the appropriate parties and institutions best equipped to deal with the various responsibilities. Experience shows that an effective approach is to build further on the capacity within the existing structures of local government and where possible utilise the existing establishment and resources. This translates into directing funds management through council accounting sections, assigning full responsibility for design and supervision of the works to local government works departments and vesting overall management responsibilities with the local government administrations.

Development committees and similar institutions representing the users of the infrastructure should be involved in the identification and prioritisation, as well as monitoring progress of the works. Finally, but equally important, the local construction industry should be the main player in terms of works execution.

When the authority is decentralised to the lowest levels of local government, there is always the danger that funds are spread too wide and works become fragmented and

for this reason less cost effective. If the selection and prioritisation exercise is not carried out in a comprehensive approach in which the public services of an entire area/region are assessed, the effects of the proposed interventions may be compromised.

A common example to illustrate this problem is the provision of access to rural areas. As this kind of service is often critical for the provision of other basic services to the rural communities, there is often strong political pressure to allocate the scarce resources available on an equal basis to all constituencies. As a result, funds allocated to each community are only sufficient to cover sporadic repairs or at best sporadic spot improvement of some road sections, rather than utilising available funds to provide a comprehensive approach to maintenance of the existing road network.



## 8.5 Planning and Identification

Rural infrastructure planning is at least as much concerned with social priorities and access as it is with economic objectives. This implies that conventional planning tools based on pure economic models, where internal economic rates of returns dictate the final selection, prove insufficient in terms of reflect-

ing the development priorities for rural communities. In this respect, the tools developed for IRAP has demonstrated how access to basic needs can be used as a primary planning criteria. Also noteworthy is how these tools can be applied with a high degree of local participation in the planning process.

## 8.6 Private Sector Participation

Local contractors can play a key role in the development and maintenance of rural infrastructure. Works of this nature can be effectively carried out through civil works contracts awarded to local contractors managed and supervised by local authorities. The dispersed nature of rural infrastructure and the limited size of each of the work sites makes it much more suitable to engage local builders and contracting firms. However, a thriving local construction industry needs a conducive

environment in which they can prosper and develop.

This not only involves further development of the skills and capacity of the contractors, but also establishing an efficient contract administration within local government agencies. This includes the development of appropriate procedures for announcement of works, bidding, submission and evaluation of bids, contract award, inspection and payment of works and resolving disputes.

## 8.7 User Involvement

Local involvement is critical since the users will know who in the community is responsible and who they must turn to in case of difficulties. Moreover, greater involvement encourages a sense of ownership. The degree and form of user involvement in rural infrastructure depends on its type, ownership as well as the nature and its maintenance and operation requirements. In all cases, it is important to secure a high degree of local participation during the identification and planning stages.

Technical and financial resources for the development, maintenance and operation of the infrastructure assets needs to be

clarified at an early stage before improvement works commence to secure the sustainability of the interventions. In this respect, it is particularly important to establish the maintenance responsibilities, whether this will rest directly with the future users or with the local authorities.



## 8.8 Maintenance

Lack of funds for operation and maintenance of rural infrastructure services is still a major problem for local government administrations. Appropriate mechanisms need to be developed for each type of infrastructure depending on its nature, ownership and work requirements in terms of (i) securing adequate and timely funding, (ii) installing appropriate management systems and implementation arrangements, and (iii) establishing and maintaining adequate administrative and technical capacity at local level.

Effective maintenance not only requires adequate funding, but also a capacity to carry out the work. When responsibilities are transferred from central agencies to local authorities, there is a considerable demand for institutional development and training. When adequate funding and capacity develop-

ment are provided, experience show that maintenance can be delivered very effectively, cost and quality wise, through a decentralised management structure.

Effective mechanisms for sustainable provision of maintenance vary depending on the type of infrastructure. Arrangements which prove successful in one sector may not necessarily be transferable to other sectors. User organisations created for the maintenance of local water supply schemes, small-scale irrigation systems and sanitation have proved to be very effective self-help solutions in these sectors. Still, these mechanisms need external support from community facilitators and technical staff in the start-up phase - assistance which could effectively be provided by local government agencies.





## 8.9 Training

Attempts to transfer such arrangements to other sectors have shown dubious results. Various attempts by governments to delegate financing responsibilities for public roads under the disguise of community participation have in general been unsuccessful.

Training is always an effective up-front quality assurance measure. When developing the capacity for infrastructure works, experience shows that there is a demand for training of both contractors' staff as

well as the local government staff in charge of works supervision and management.

Training is often required in technical subjects, contract management, operation and maintenance of equipment, and business management. This type of training is best carried out in a real situation, focusing on purpose-oriented skills training methods. For this reason, it should be conducted with real examples and in an environment of learning by doing.

## 8.10 Potential for Success

Local authorities are generally more receptive and have more potential than is perceived by the central agencies. Provided that a comprehensive training and technical assistance programme is provided to support local government institutions in such development efforts, experience clearly shows that local authorities can perform accordingly and deliver the expected services required in a rural infrastructure development programme.

Through the provision of technical assistance to programmes of this nature, it is possible to (i) develop effective local planning procedures with a high degree of direct user involvement, (ii) establish an effective contracts management system within local government and (iii) develop the local construction industry to respond to the specific requirements of a rural infrastructure works programme.

**ASIST AP** is a regional programme of the Employment Intensive Investments Programme (EIIP) of the ILO, concerned with developing and mainstreaming poverty alleviation strategies through sustainable infrastructure development. The programme is implemented through four major fields of operation, viz: accessibility planning, labour-based works technology, small-scale contracting and infrastructure maintenance, thus providing a comprehensive approach to infrastructure development covering all stages from planning and construction to maintenance and operation.

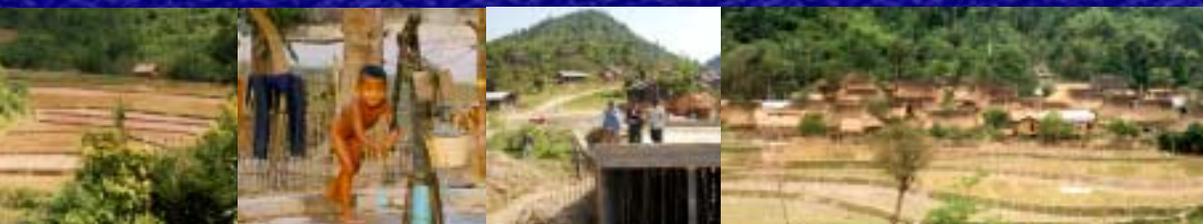
Based in Bangkok, ASIST AP provides a full range of expert support to all stages of the project cycle from formulation, implementation, monitoring to final review and evaluation. These services include activities such as:

- ◆ planning, policy development and design of infrastructure programmes,
- ◆ influencing public investments in infrastructure towards the greater use of local resources,
- ◆ technical and managerial support to project implementation,
- ◆ information services,
- ◆ preparation of planning and implementation guidelines,
- ◆ developing appropriate methods for increased involvement of the domestic construction industry in infrastructure works,
- ◆ design and conduct of tailor-made training programmes, and
- ◆ design of appropriate maintenance management systems.

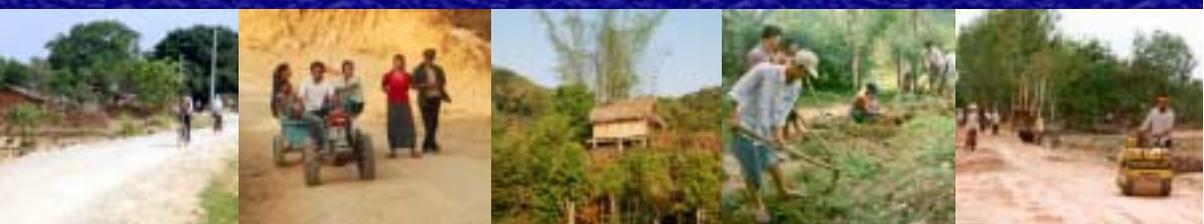
This document forms part of a series of publications from ASIST AP, in its efforts to develop and disseminate general and country specific guidelines, best practices and lessons learned in the context of planning and implementing infrastructure works programmes.

More information about ASIST AP can be found at [www.iloasist.org](http://www.iloasist.org) or by contacting us at

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There is a growing trend to decentralise responsibility for provision and maintenance of infrastructure. Whilst the degree and form of such initiatives vary, the rationale is usually to enhance localised participation, improve the sense of ownership and generally improve efficiency in planning and implementation. Rural infrastructure provision often consists of a large number of comparatively small investments over a geographically large area. With the appropriate management tools and sufficient resources, local authorities are in a good position to effectively plan and supervise rural infrastructure works. The nature of these works offers significant potential for the use of local resources including small and medium sized contractors, builders, labour and materials.



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