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# COMMUNITY INFRASTRUCTURE DEVELOPMENT IN URBAN AREAS

CREATING JOBS WHILE IMPROVING LOW-INCOME URBAN SETTLEMENTS



# IMPLEMENTATION GUIDE FOR NEPAL



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## **IMPLEMENTATION GUIDE FOR NEPAL**

**Serge Cartier van Dissel**

**ILO OFFICE FOR NEPAL  
EMPLOYMENT INTENSIVE INVESTMENT PROGRAMME (EIIP)**

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## INTRODUCTION

Poverty in the world is becoming more and more urbanised, mainly as a result of the general urbanisation of the world's population, both due to natural urban population growth and because of a steadily increasing influx from rural areas into cities and towns (especially by rural poor). These urban poor tend to live in low-income settlements, where they face high levels of under and unemployment and poor access to basic services.

This guide provides a framework for implementing community infrastructure development in urban areas in Nepal, creating jobs whilst improving low-income settlements. This chapter introduces basic data on urban development and poverty and explains the relationship between poverty and infrastructure development, presenting community contracting as a means of creating employment and incomes, whilst at the same time improving the access of the poor living in low-income settlements to basic services. Subsequent chapters will go into more detail regarding the different steps involved in community infrastructure development in urban areas.

## URBAN DEVELOPMENT AND POVERTY

In 2003 about one third of the Asian population, 1.5 billion people or 20% of the world's population, lived in urban areas. It is estimated that by 2030 more than half the Asian population will be urban and that the size of the urban population will have nearly doubled to 2.7 billion people or 30% of the world's population.<sup>1</sup>

Although less than 30% of Asia's population is considered to be poor, in absolute numbers they form 70% of the world's poor. Of Asia's urban population, almost 25% is poor, and this percentage is only increasing with the continuous influx of poor people into cities. With this large and ever increasing number of poor in Asian cities and towns, the need to address poverty in urban areas is becoming widely recognised, especially with its inclusion in the millennium development goals.

The urban poor tend to live in low-income settlements, which are characterised by poor access and a lack of basic services. Access and basic services cannot be adequately provided to the increasing number of urban residents, with half the urban population not having access to proper water supply and many cities lacking efficient solid waste collection systems as well as sufficient sewerage connections and sanitary landfill facilities<sup>2</sup>. Another specific issue is under and unemployment, with millions of people in low-income settlements dependant on the informal economy where they earn only just enough to survive.

The concept of community infrastructure development in urban areas aims to address both these issues, through the provision of improved access to basic services for the urban poor and the creation of employment in the implementation and operation of these improvements in low-income settlements. As such, it addresses several of the Millennium Development Goals, creating productive employment, decent work and incomes for the urban poor (MDG 1), improving access to education for boys and girls (MDG 2), providing employment and management opportunities for women (MDG 3), increasing access to health care and basic health services as well as decreasing sources of health hazards (MDG 4, 5 and 6), and increasing access to safe drinking water and basic sanitation facilities and improving the general living standards of people living in low-income settlements (MDG 7).

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<sup>1</sup> Source: <http://www.adb.org/urbandev/faqs.asp>

<sup>2</sup> Source: <http://www.adb.org/urbandev/faqs.asp>

## **INFRASTRUCTURE DEVELOPMENT IN URBAN AREAS**

Urbanisation creates not only challenges, but also opportunities. Cities have the potential to foster economic growth, social development and improvements in the living and working conditions for the urban poor. In any strategy for improving the living and working conditions of the urban poor, however, the centrepiece should be formed by settlement upgrading, consisting of physical, social, economic, organizational and environmental improvements. Infrastructure development, in turn, forms an important part of any settlement upgrading, and the required improvements in living and working conditions will not be achieved if proper infrastructure and amenities are lacking. Infrastructure development makes a highly visible, immediate and large difference in the quality of life of the urban poor, whilst at the same time catalysing private investment by residents.

Apart from impacting on living and working conditions, infrastructure development also provides an opportunity for the creation of employment and incomes for the urban poor. Through the optimal use of local resources, both human and material, and the use of sound and basic work methods and technology in the development, operation and maintenance of this infrastructure and related services, the benefits for the urban poor can be increased.

This implies the efficient and competent use of labour-based approaches and their combination with locally available materials and equipment, creating employment and income opportunities for the unskilled poor as well as for skilled workers and local contractors and enterprises. Ensuring basic working conditions in the implementation of these infrastructure works can further assist in achieving the goal of decent work for all (MDG 1). Such basic working conditions include the adherence to minimum wage standards and to working hours, equal remuneration for work of equal value, non-discrimination in the recruitment of workers, ensuring worker safety and health through basic safety measures in the work place and workers' compensation for work accidents, and the prevention of child labour and forced labour. This guide will deal with these and other related aspects in greater detail with the aim of ensuring that the employment generated through community infrastructure development in urban areas indeed leads to the creation of decent work.

The involvement of urban communities in the entire infrastructure development process, from planning and prioritisation through implementation to operation and maintenance, can enhance these benefits even more, by ensuring appropriate and sustainable infrastructure and through skills creation and organisational strengthening.

## **COMMUNITY CONTRACTING**

Such direct community involvement in the implementation process is commonly referred to as community contracting, and often extends to the pre- and post-implementation stages of planning and operation & maintenance. In such an approach the community is firstly involved in determining and prioritising its needs and identifying suitable solutions, after which it participates in the implementation of the solution decided upon. This involvement in the implementation stage is formalised through a contract signed between the contracting agency and a representative community-based organisation (CBO), defining the roles and responsibilities of both partners. Such a community contract may already define the characteristics of the operation and maintenance of the infrastructure to be created, or this may form part of a separate agreement.

The advantages of involving the communities in the entire infrastructure development process are both material and non-material. The material advantages include a greater impact and sustainability of the infrastructure created, as this will be more appropriate to the needs and customs of the community and their involvement throughout the process will create the necessary skills and sense of responsibility for its subsequent operation and maintenance. But in a non-material sense, the involvement of the community in the entire project process will also ensure the development of local skills and the strengthening of the

community-based organisation as well as the community as a whole, thus paving the way for other community initiatives and ensuring greater access to other employment opportunities.

## MUNICIPAL AUTHORITIES

The municipal authorities form the main counterpart for the urban communities in upgrading low-income settlements, and as such form the main target audience for this guide. Although other actors including development and donor agencies, civil society organisations, NGO's, federations and associations, universities and other institutes of learning, the private sector, and public utility providers may play a role in infrastructure development in urban areas and the upgrading of low-income settlements, and as such may also find this guide useful, the municipal authorities will always be one of the main partners involved and will generally be the contracting agency that enters into an agreement with the urban communities.

This guide is therefore specifically aimed at providing municipal authorities with the information they require to successfully implement community-based infrastructure development in urban areas aimed at upgrading low-income settlements and creating employment and income opportunities in the process.

## ILO AND URBAN PILOTS

This guide is based on the tools developed by the ILO for employment and income generation in community-based infrastructure development in urban areas, specifically the generic regional guide developed in 2009<sup>3</sup> and the different pilot projects it was based on. The approach for community-based infrastructure development in urban areas was further tested and improved through the implementation of four pilot projects in Nepal, which has led to the development of the current guide specifically for the context of urban areas and communities in Nepal.

The pilots were carried out in Janakpur Municipality in the district of Dhanusha, and involved the communities of three toles (Rajaul, Mujelia and Sohani) in one of the poorest wards of the municipality. The infrastructure prioritised by the communities and developed as part of the pilot projects included the improvement of access roads and urban roads, the construction of drainage canals, and the construction of a community building. Experiences from these four pilot projects are incorporated throughout this guide to highlight the different steps of community infrastructure development in urban areas. More details on the four pilots can be found in **Annex 1**.

## THIS GUIDE

This implementation guide provides a step-based approach to community infrastructure development in urban areas. The different steps provide guidelines on how to ensure the involvement of the urban communities throughout the project cycle and how to optimise the creation of employment and income opportunities for community members and local contractors and enterprises, at the same time ensuring the efficient and technically competent use of resources to ensure the cost-effectiveness and technical quality of the infrastructure that is created.

The first four chapters look at the project preparation phase. Chapter 1 looks at the selection and prioritisation of the ward and communities that are most in need through effectively targeting the poorest areas within the municipal boundaries. Chapter 2 provides the required tools for determining the priority needs of the selected communities, whilst the third chapter goes into the formation and registration of the community-based organisations that will form the counterpart for the municipal authorities in the implementation of the project. The last chapter of this phase, chapter 4, describes the final stages of project preparation in which the

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<sup>3</sup> "Community infrastructure in urban areas - Creating jobs while improving low-income settlements", ILO Regional Office for Asia and Pacific, 2009.

project designs and the cost and employment estimates are prepared and discussed with the communities.

The next four chapters refer to the project implementation phase. Chapter 5 looks at the contracting arrangements, focussing on community contracting, and looking at important issues such as the contract document and the payment arrangements. Chapter 6 discusses the need for training and supervision for both the CBO and the workers, whilst chapter 7 looks at the organisation of the different inputs during the work implementation. The final chapter of this phase, chapter 8, goes into the need for a practical and efficient monitoring system to ensure proper project management and transparency, allowing the project implementation by the CBO to be monitored by both the contracting agency and the wider community.

The last chapter of this guide looks at the post-implementation phase of operation and maintenance. It discusses how best to use the available resources and skills to ensure the sustainability of the infrastructure created, whilst at the same time creating additional long-term employment and income opportunities. The role of the community, the municipal authority and possible other actors in this phase is discussed.

## 1. COMMUNITY SELECTION

The first step in the process of community infrastructure development in urban areas is the selection of the community or communities in which to invest the limited resources generally available to municipal authorities for infrastructure improvements. At least part of these resources should be aimed at the poorest communities and those most in need of upgrading within the municipal boundaries. This chapter looks briefly at the identification of communities and their prioritisation and selection based on poverty and other criteria.

### WARDS, TOLES AND COMMUNITIES

Before the process of community infrastructure development in urban areas can be initiated, the “community” needs to be defined. Traditionally a community is defined as “a group of interacting people living in a common location”<sup>4</sup>. In rural areas communities are often defined geographically (a group of households living in close proximity to each other), and generally share a common background and common perceptions of the world around them. In the urban context, however, where a very large number of people live in close proximity to each other and often come from different backgrounds and have different perceptions (especially in low-income settlements where the influx from rural areas is high), communities tend to be defined by administrative boundaries. Other characteristics such as religion, caste or ethnicity may also have a strong influence on the definition of communities and their boundaries.

In Nepal the municipalities are divided into wards. Within these wards different toles can generally be identified, which are seen as separate communities. This is not to say that these communities are homogenous as their members may come from different backgrounds, caste, religion, etc. Depending on the degree of homogeneity, different geographically separated sub-toles may exist, each forming its own community, or otherwise the tole as a whole may be seen as a single community with different subgroups.

#### Identification of pilot communities

The ward selected for the pilot projects consisted of three toles: Rajaul, Mujelia and Sohani. It was decided to treat Mujelia tole as two separate communities, however, as Mujelia-1 was the central urban core of the tole with a population consisting exclusively of middle caste, whereas Mujelia-2 was more rural in nature and located slightly further away from the main highway, consisting mainly of lower caste. The problems they faced were also very different in nature.

Although Mujelia-2 was also highly segregated and consisted of four separate subgroups, with the population of each subgroup being from different castes, it was decided to treat them as one single community to avoid working with too many and very small communities, but ensuring adequate representation of each subgroup. This did result in some difficulties upon defining the priority needs of Mujelia-2 as the different subgroups prioritised different needs, but by ensuring adequate representation of all subgroups, an agreement could be made as to what the main priority was for the community as a whole.

The example above shows that the definition of a community is not always straightforward. The categorisation of very differing population groups as one single community may mean excessive differences between its members that may lead to complications upon determining the priorities of the community as well as during implementation. On the other hand, segregation of population groups into ever smaller communities may result in the need for excessive inputs for the planning exercises and lead to very small projects with limited impact.

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<sup>4</sup> Source: Wikipedia

Upon defining communities it is therefore important to assess to which degree an administrative unit may need to be subdivided to take into account important differences (cultural, geographical, architectural, etc.) within that unit. The definition of the community will also depend on the prioritised needs and solutions, where some prioritised interventions may have a scope that impacts different sub-toles, toles or even wards, whilst others may be more limited in scope to only one sub-tole. But communities should always be geographically defined.

From the point of view of the municipal authority it makes sense to work with toles as the lowest administrative level being equivalent to a community. The important issue, however, is to keep in mind that it may be necessary to further disaggregate the tole if excessive differences are encountered in its population. At the same time, it may be possible and necessary to group different toles together if the scope of the prioritised intervention requires this.

## SELECTION CRITERIA

In order to prioritise and select the communities in which to invest the limited funds available to municipal authorities for infrastructure improvements, selection criteria need to be defined. Given the objective of upgrading low-income settlements, core criteria should be poverty and access to basic services. A ward, tole or community lacking access to basic services should receive priority over one with better access. Similarly, a poor ward, tole or community should receive priority over one that is less poor.

To determine the level of poverty and/or access to infrastructure and basic services, data is required. Basic data regarding poverty and access to services should be available with the municipal authorities, although this may only go down to ward level and may be outdated. More detailed or current data may also be available from local NGO's or development agencies.

With respect to the criterion of poverty, different definitions may be applied and different indicators developed (e.g. number of people living on less than US\$1 per day, percentage of households able to satisfy their basic needs, etc.). In the end, however, the indicator to be used will depend on the data available. Where different indicators can be developed using the available data, the most suitable indicator or a weighted average of the different indicators should be used. In using poverty data, it is important to use both percentages and absolute numbers. Whereas the percentages give an idea of how widespread poverty is within a certain administrative unit, they fail to reflect the number of poor in that unit<sup>5</sup>. The use of both percentages and absolute numbers will give a more balanced view.

Regarding access to infrastructure and basic services, data may be less easily available. Also, given the difficulty of working with different types of infrastructure and services, each with different access levels and different degrees of importance, it is recommended to use an Infrastructure Poverty Indicator. This indicator should be a weighted average of the levels of access to the different types of infrastructure and basic services, where the weight reflects the relative importance of each type of infrastructure or service.

Apart from poverty and access to basic services, other criteria may also be used, such as the percentage of Dalit in the administrative unit, or the lack of other support programmes. In the end the choice of indicators and criteria to be used will be determined by the available data. In the case of the pilot projects in Janakpur, abundant data was available from the Poverty Profile prepared by the municipality some years earlier, allowing for the identification of the poorest wards both in terms of income as well as in terms of access to basic services. Such

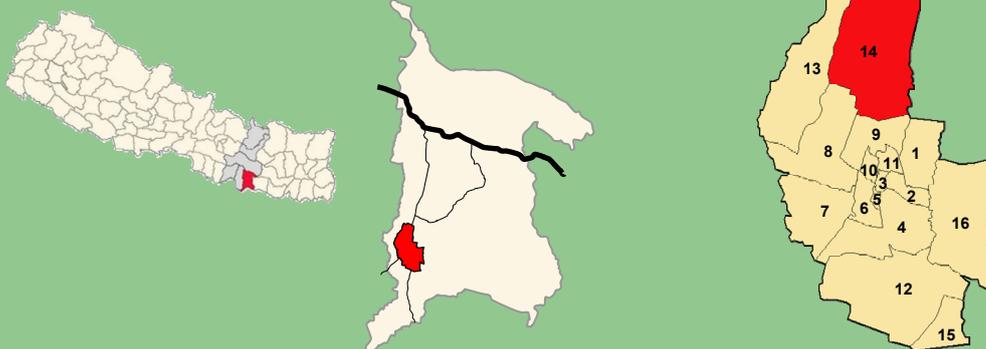
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<sup>5</sup> For instance, the ward with the highest percentage of poor households is not necessarily the ward with the highest number of poor people. If the ward is very small, there may be a number of other wards with more poor inhabitants.

data will certainly not always be readily available for all the municipalities in Nepal, and other sources of data may need to be sought, or simplified measures used to determine the poorest wards.

Whatever the final criteria used, it is recommended to calculate a Total Poverty Indicator incorporating all the criteria deemed important as weighted averages. This indicator will not provide the absolute truth as to which ward or tole is the poorest and should therefore be prioritised, however. The indicator is a compilation of different indicators given subjective weights and as such the results will depend heavily on the weights given to each indicator. However, the use of such an indicator will make the selection process more transparent, and although the weights are subjective, these can be viewed and questioned by anybody.

### JANAKPUR PILOT PROJECTS



Janakpur municipality is located in Dhanusha District in the Central-Eastern Terai. It is the district capital as well as the capital of the Janakpur Development zone covering Dhanusha, Sarlahi, Mahottari, Sindhuli, Ramechhap and Dolakha districts. Janakpur municipality consists of 16 wards with a total population of nearly 63,654 people according to the 2005 Poverty Profile.

Data	Ward															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Households	1,179	1,113	381	1,915	452	586	849	1,198	816	572	681	669	737	1,290	525	1,235
Population	4,460	5,009	1,876	6,839	1,643	2,755	3,856	5,602	4,273	2,264	3,090	2,704	4,081	6,534	2,449	6,219
Average income	6,695	7,288	8,094	7,239	5,715	6,370	6,552	5,292	8,684	4,991	5,003	4,555	5,342	4,523	4,404	5,461

Use was made of the Poverty Profile that had been prepared by the municipality with support from the Ministry of Local Development, the Municipal Association of Nepal and GTZ in 2005. Using data from the Poverty Profile, the income poverty of each ward was determined based on the income data available, including the average ward income, the percentage of households in each income group and the number of households in each income group (see **Annex 2** for more details). In the end an *Income Poverty Indicator* was established as the percentage of households in each ward earning less than NPR 3,000 per month.

The poverty profile also provided data on access to different infrastructure types, including access to gravel or black-top roads, toilet facilities, electricity, private drinking water, and drainage (see **Annex 2** for more details). Based on these data an *Infrastructure Poverty Indicator* was calculated by giving each infrastructure type a certain weight. This Infrastructure Poverty Indicator gave an indication of the wards with the least access to infrastructure and basic services.

Finally, a *Total Poverty Indicator* was also calculated by assigning weights of 70% and 30% to respectively the indicators of Infrastructure Poverty and Income Poverty. This resulted in the identification of Ward 14 as the poorest ward with respect to the Total Poverty Indicator, taking into account both income poverty and infrastructure poverty. The decision to select ward 14 was strengthened by the fact that this was the only ward currently not receiving support from any other programmes.

Poverty	Weight	Ward															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Income poverty	0.3	37.1	20.9	37.3	23.9	36.1	35.3	26.4	42.5	23.7	46.3	42.0	58.9	41.7	52.3	49.7	41.9
Infrastructure poverty	0.7	37.1	23.5	19.9	23.1	16.9	33.0	29.2	29.9	28.5	22.5	37.7	50.7	54.7	54.3	54.3	51.5
<b>Total poverty</b>		<b>37.1</b>	<b>22.7</b>	<b>25.1</b>	<b>23.3</b>	<b>22.7</b>	<b>33.7</b>	<b>28.3</b>	<b>33.7</b>	<b>27.0</b>	<b>29.6</b>	<b>39.0</b>	<b>53.2</b>	<b>50.8</b>	<b>53.7</b>	<b>52.9</b>	<b>48.6</b>

As can be seen in the example above, the poverty data is generally only disaggregated to ward level at best, thus allowing only the selection of the poorest wards, not the poorest toles or communities. Where this is the case, it is recommended to work with all the toles in the selected ward, unless there is data available that allows further prioritisation.

In the final selection of the toles or communities to work in, account should be taken of the status of the settlement. For settlements that are located on dangerous land (subject to severe flooding, in danger from landslides, etc.) or on land that is not owned by the community (members) or the municipality, upgrading is generally not an appropriate solution to their problems. Even where such settlements are prioritised based on the selection criteria, these should not be selected to be included in the rest of the planning process. They should not be ignored, however, but other solutions should be sought for their particular situations that are not part of this guide (relocation, improved safety measures, secure land tenure, etc.).

## 2. PROJECT PRIORITISATION

Once the communities have been identified in which the upgrading projects will be carried out, the projects themselves need to be identified. This involves a process of problem ranking as well as the preliminary identification of interventions in each of the selected communities. This chapter describes the required process for determining the priority needs and preliminary interventions in a community, from an initial introduction of the project objectives and scope to the ranking of problems and identification of interventions using different participatory tools.

### PROJECT INTRODUCTION

Before the participatory planning and the prioritisation of needs and interventions can take place, the project needs to be introduced to the communities. This can be a relatively short meeting, for which the whole community is invited. During the meeting the objectives, scope and process of the project should be explained. At the same time these initial meetings serve to gather additional information regarding the community (number of households, castes, poor, etc.) and to already get some indication of the main needs of the community (although this will need to be confirmed at a later stage).

This initial meeting serves primarily to make community members aware that a project is about to start in their community and make sure that everybody is able to become involved in the process. Such a meeting may be complemented by other forms of communication such as radio adverts or hanging up pamphlets, to ensure as wide an audience as possible is informed of the project and will thus be able to become involved.

The initial meeting should be organised by contacting the community leaders and having them call for the meeting.



Introduction meeting

The introduction meeting (and other communication means) also serves to prepare the next meeting in which the actual planning will take place. A date and place needs to be set for this



Planning meeting

planning meeting, ensuring as many people as possible are made aware of the meeting and its objective, and will hopefully attend, thus achieving a more democratic and transparent identification of priority needs. In setting this planning meeting, a suitable location should be selected allowing participation of all community groups (public spaces are preferable) and appropriate for the participatory mapping and problem ranking exercises to be carried out. Also, the timing of the planning meeting should suit the community members with regard to their other duties and activities, thus ensuring wider participation.

## PARTICIPATORY MAPPING

The first activity to be undertaken in the planning meeting is participatory mapping. After a brief recollection of the scope and objectives of the project, the community members present at the meeting are requested to map their community. This serves both to assist the planning team to better identify the different infrastructure and services existing and lacking in the community, but it also helps to focus the discussions later on and to ensure that all understand exactly where the problem or the proposed intervention are located.

For the participatory mapping, it is recommended to make use of large sheets of paper of about 1.5 x 2 m (flipcharts pasted together work very well). These can be laid on the ground or on a table (in determining the location for the meeting, account should be taken of the need for a suitable space for the mapping exercise). Different colour markers are made available to the community members and they are asked to depict the main characteristics and infrastructure in the community. The drawings need not be very detailed, but should indicate the streets, public buildings, waterways, etc. It can also be useful to indicate certain houses so people can locate themselves and their houses more easily on the map.

As the map begins to take form, the community members are asked to identify the main problems they face in terms of access to basic services and infrastructure. These problems should be located on the map.



Generally a few persons will be made responsible for making the map and indicating the problems, but it is important to ensure that the other community members are involved, for example by asking them to locate their house on the map or by giving them a marker and asking them to indicate the main problem they face. Especially vulnerable groups such as women and Dalit or Janajati should be motivated to participate in this process.

At this stage the aim is not yet to identify the priority problems or needs, but to open up the discussion and motivate a general brainstorming of existing

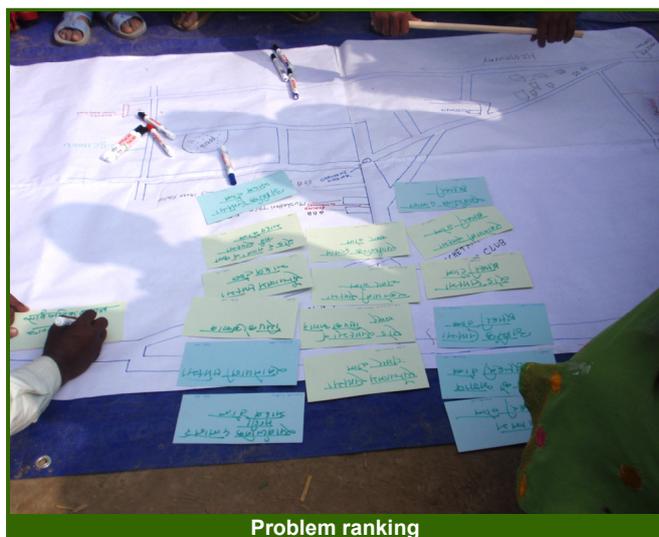
problems in the community. The planning team should aim to focus the discussion on problems related to infrastructure and basic services, as these are the problems that may be addressed through the proposed project. Other types of problems may be very important to the community, but without the means to address these, it makes little sense to discuss them in detail, and may even lead to disappointment if after a long discussion it turns out they can not be dealt with.

## PROBLEM AND NEEDS RANKING

Once the map has been finalised to the satisfaction of the community members and a number of problems has been identified and located on the map, the problems need to be prioritised and suitable interventions identified to address them. For this purpose, the community members are first asked to identify the 5 main problems<sup>6</sup> they face in their communities, based on the problems already discussed and indicated on the map. Depending on the scope of the problems already identified, these may need to be divided

<sup>6</sup> It is not necessary that they list exactly 5 problems. These may be a few more or less, but should not be many more.

into different sub-problems (e.g. a problem of drainage may be divided into different sections, distinguishing the most problematic areas from less problematic areas).



Problem ranking

The main problems are written on cards by one of the community members, using a separate card for each problem. Once the community members have agreed on the main problems, they are requested to rank them from the most important or urgent to the least important. This will require some discussion between the community members, as not all will prioritise them in the same way. The discussion must result in a consensus regarding the most important problems, however, and this needs to be checked with different community members and especially the vulnerable groups such as women

and Dalit, to ensure that all agree on the ranking. Where there is no immediate agreement, further discussion is required.

It is important to focus on the problems at this stage, rather than on the solutions or proposed interventions. Once the priority problems have been agreed upon, possible solutions to the problem can be discussed. Herein the cause of the problems should be taken into account, as the problem may be only the symptom of an underlying cause.

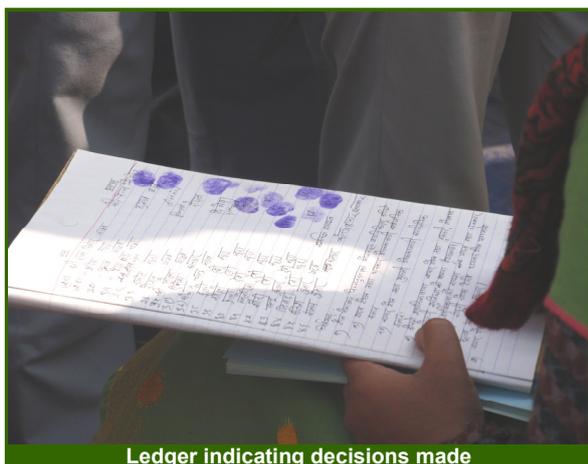
#### Finding the right solution

A community suffering from a high prevalence of dengue fever established this as their priority problem. The intervention proposed by the community on how to deal with this problem was to build a clinic to treat the patients to avoid having to take them to the nearest city hospital. After more in-depth discussions regarding the nature of the problem, the proposal was changed and it was decided to deal with the root of the problem - poor drainage and pools of water where mosquitoes were breeding. Instead of a clinic a drainage scheme was proposed, the result of which was a decrease in the prevalence of disease in the settlement. The community's priority had not changed, but with the support of professional advice they had arrived at a better solution.

#### Scope of the intervention

In one of the pilot projects the community had proposed the creation of approximately 1,600 m of lined side drains. Only after the detailed survey of the works and the preparation of the cost estimates did it become evident that the cost was way beyond the available budget. In the end the length was brought back to 590 m. It would have been helpful to have had average unit costs available during the planning meeting in order to already then limit the scope of the proposed intervention and at the same time identify the most urgent sections together with the community members, thus avoiding the creation of false expectations. The final definition of the intervention will always have to wait till the cost estimate has been prepared, but the difference with the proposed intervention will then not be very large.

The proposed solutions are not final, however, and will be discussed in greater detail after initial designs and cost estimations have been carried out. But their discussion at this stage already allows the community to voice their wishes as to the type of solution, whilst at the same time allowing the planning team to delineate the limitations of the project in terms of funding and the objectives of local resource use and employment generation, and to check whether the proposed interventions are in line with municipal plans. For this purpose it is useful to already have an idea of average unit costs for different types of interventions (e.g. cost per metre for road gravelling or constructing lined drains) and the available budget, so that the scope of proposed interventions can be adjusted to what is feasible.



Ledger indicating decisions made

The decisions taken regarding the priority needs as well as proposed interventions to address these needs, should be noted down in a ledger and signed by the community members<sup>7</sup>. This will ensure greater transparency and will introduce the community to the practice of noting down decisions, which will become more important further along the project process.

## TRANSECT WALKS

Apart from the mapping and the problem ranking, it is recommended to visit the prioritised problem areas to get a better idea of the nature of the problem and possible solutions. For this purpose a transect walk is undertaken with a number of community members. Such a transect walk may simply be a visit to a specific problem location, but may also consist of a generalised walk through the community, assessing the degree of a specific problem in different parts of the community.



Visit of proposed building site



Transect walk along access road proposed for improvement

During the transect walk more information is obtained as to the location of the prioritised problems and the proposed interventions. In discussions between the planning team and the community members a better idea is formed regarding the intervention required to solve the identified problem. These discussions also allow different possible interventions and designs to be discussed with respect to their cost, employment potential and cultural acceptance. Based on these initial discussions, detailed designs and cost estimates will be prepared allowing for more detailed discussions (see also chapter 4).

## PARTICIPATION OF VULNERABLE GROUPS

As mentioned before in this guide, it is important to ensure the participation of vulnerable groups in the planning phase, as well as during the subsequent implementation and operation phases. In the context of community infrastructure development in urban areas, vulnerable groups refer to those groups of people that due to race, colour, gender, caste,

<sup>7</sup> Those unable to write should put their thumbprint.

creed, background, etc. have less opportunity or ability to voice their opinions and come up for their rights, or face different problems than other members of the community.



In the context of Nepal, one should especially think of women who often have less voice than men, and Dalit or Janajati who have less voice than middle/upper caste community members but also often live in the poorer areas of the community and have higher incidences of poverty and under or unemployment. But other vulnerable groups may also exist in certain communities, such as Muslim or Christian groups. Also the youth can be considered to be a specific target group, as they tend to have higher incidences of under and unemployment, exposing them to potential negative influences<sup>8</sup>.

In order to ensure that the voices of these vulnerable groups are heard and their problems also addressed, their participation should be stimulated throughout the project cycle, but especially during the project planning phase. This can be done by specifically asking for their opinion and input during the planning sessions, but it may be necessary in certain occasions to arrange separate meetings with such vulnerable groups to ensure they feel free to express their views, during which the conclusions from the general meeting can be confirmed and possibly amended.



<sup>8</sup> Especially in the Terai there is a high incidence of youth joining armed political or criminal groups.

### 3. COMMUNITY ORGANISATION

The objective of community infrastructure development in urban areas and community contracting is to involve the community throughout the project cycle, in the planning phase but also in the implementation phase and the subsequent phase of operation and maintenance. To make this feasible and practical, it is necessary to work with a small group of community members representing the wider community, organised into a so-called community-based organisation or CBO. This chapter looks at the election of the CBO members and the formation and registration of the CBO which will form the principal counterpart for the municipal authorities for the rest of the project cycle.

#### FORMATION OF A COMMUNITY-BASED ORGANISATION (CBO)

The formation of the CBO basically entails the election of its members by the community. The number of members required depends to a certain degree on the size of the community, but it is recommended to aim for between 5 and 9 members, although smaller or larger CBO's may be appropriate under certain circumstances. It is further recommended to have an uneven number of members to allow decisions to be made easily by majority vote.

The election of the CBO members should be done by the community. There are no real criteria for the selection of the CBO members, although a number of requirements should be fulfilled. The elected members should be representative of the whole community, and thus include members from the main vulnerable groups. In Nepal, policy determines that at least 50% of representative bodies should be filled by women. This may be difficult to achieve, but an appropriate representation of women should definitely be a prerequisite for the formation of a CBO. The representation of different castes



CBO members

and especially Dalit and Janajati should also be ensured. Representation of other vulnerable or minority groups will depend on the characteristics of each specific community.

#### Selection of CBO members

In Janakpur, one of the pilot communities was divided into four geographically divided subgroups, each from a different caste. During the problem ranking and intervention identification exercise some disagreement already became obvious between the different subgroups, although in the end a consensus was found regarding the priority needs and interventions. However, to avoid major problems during the implementation phase, it was decided to ensure adequate representation from each subgroup. It was further decided to promote the participation of women in the CBO, leading to the election of one man and one woman from each subgroup. One additional member was elected to ensure an uneven number, thus facilitating decision-making by majority vote. Although the resulting CBO of 9 members was relatively large considering the size of the community and the proposed project, it ensured proper representation of the different groups that existed in the community, thus avoiding the decisions made by the CBO from being challenged on the basis of lack of representation.



The election of the members of the CBO can be carried out immediately after the planning exercises, once the priority needs and proposed interventions have been determined. It is recommended that some of the CBO members have a direct stake in the proposed interventions (are directly affected by the prioritised problems). At the same time, however, it is recommended not to limit the CBO members to the prioritised problem area in the community, as one of the objectives of community infrastructure development or community contracting is organizational strengthening of the community beyond

the duration of the project. The lifespan and objectives of the CBO should therefore not be limited to the current project, and an effort should be made to create a CBO that can represent the wider community both during the current project as well as in future projects or negotiations with municipal authorities or other actors. It is therefore more important that the CBO be representative of the community as a whole than only of the foreseen beneficiaries of the proposed intervention.

Where community organisations already exist, it may be possible to work with these rather than creating a new organisation. In the case of existing organisations, however, it is important to verify that these are representative of the different community groups and that their objectives are in line with the proposed intervention and the general aim of settlement upgrading.

#### Existing CBO's

In one of the pilot communities in Janakpur, a community organisation already existed, which had the development of the tole as its objective. It was therefore decided to work with this existing organisation rather than creating a new one. The members of the existing organisation were only men, however, so it was decided to extend the membership to also include a number of women, relaxing the quota set for women to ensure the size of the CBO did not become too large.

During the election of the CBO members, a Chairperson, Treasurer and Secretary should be elected from amongst them.

The Chairperson and Treasurer will have access to the CBO's bank account, whilst the Secretary will be responsible for noting down all the decisions made.

## REGISTRATION OF A COMMUNITY-BASED ORGANISATION (CBO)

Once the members of the CBO have been elected and agreed upon, the CBO needs to be registered in order to allow it to open a bank account and enter into a contract with the contracting agency (generally the municipality). This registration is most effectively and efficiently done with the municipality itself. Registration with other entities is also possible, but is generally only required if the CBO wishes to enter into other activities beyond the project at hand, or if the procurement regulations of the contracting agency require a greater degree of formality. The choice of the legal organisational modality of the CBO should take into account, however, the possible need to change its members in future. Once the CBO has been registered it is able to enter into a contract with the contracting agency.



CBO registration certificate

### CBO registration

Of the CBO's in the pilot communities, three were registered with Janakpur municipality. The fourth was registered with Nepal Social Welfare Council, as this was an existing organisation that had already been registered before the project cycle had been initiated. The registration with the municipality was facilitated by the Social Mobiliser of the municipality, who was involved in the entire project cycle. The registration was completed within one week.

It is recommended that the CBO also open a bank account, preferably with two signatories (Chairperson and Treasurer). For opening a bank account a minimal inlay is often required, and this should be collected from the community members. This can later be reimbursed after the first payment has been received, although the objective of community infrastructure development in urban areas is to strengthen community organisation beyond the contract duration, and as such the CBO and the bank account should continue to exist beyond the project end. In very poor settlements or less unified and poorly organised communities this initial inlay may form a problem, and in such cases a guarantee letter to the bank from the contracting agency may help in opening the bank account pending the first instalment.

## 4. PROJECT PREPARATION

Once the projects have been prioritised by the community, detailed designs and cost estimates need to be prepared to define the final project characteristics. It is recommended to also prepare employment estimates, whereby the choice of design and the implementation methods will have an impact of the employment and incomes to be created. This chapter looks at this project preparation stage, including the surveying of the intervention sites, the compliance of the proposed intervention with existing municipal plans and standards, the choice of design and its implications on the project cost and employment potential, the preparation of cost and employment estimates based on existing norms, and finally the discussion of the results of this stage with the communities concerned.

### SURVEYING

Before the designs and cost estimates can be prepared, a detailed survey of the proposed intervention should be carried out. This is best carried out together with community members, and it is recommended to already start involving the CBO members at this point. This will facilitate the taking of measurements in which the CBO members can assist, but will also allow more detailed discussions on the scope of the intervention and design options.



Surveying of proposed intervention

### REVIEW OF MUNICIPAL PLANS AND STANDARDS

The proposed interventions also need to be checked against municipal plans for the project area as well as against national or municipal standards regarding the type of infrastructure concerned (e.g. standards for school buildings or minimum road width). Where linkages to existing infrastructure and services are foreseen (e.g. electricity or water supply), it is important to also involve the relevant authority and review their plans and standards.

Such plans and standards may include requirements regarding the dimensions or location of the infrastructure (e.g. road width, location of schools), but may also include requirements regarding the materials to be used (e.g. type of road surfacing or type of building material). For a project concerning road improvement and the construction of drains, for instance, the official width of the right-of-way needs to be looked up in the municipal plans and checked against the existing situation (is the existing right of way according to standard, or is there less space available), and any standards regarding minimum road width and drain size or acceptable construction materials and road surface types need to be assessed (for instance, are unlined drains and gravel roads acceptable).

Often it will be the case that the municipal plans indicate a location or define standards for certain infrastructure that differs from the existing situation on the ground or from the intervention as proposed by the community. This may be the result of encroachment on public land by community members or alternatively be due to the fact that municipal plans have been prepared as a theoretical exercise without properly taking into account the reality including the location of existing buildings or the cost of certain construction materials in relation to the available budget.

Where such a discrepancy exists between the municipal plans and the existing situation or proposed intervention, two options exist. One is to abide by the municipal plans and standards and to prepare the designs according to these plans and standards, even though this may mean that the available project funds will only allow a limited intervention due to

higher material costs, that the employment potential will not be achieved due to the need for technical expertise and equipment, or that the standards will require the demolishing of existing buildings. The second option is to enter into a negotiation between the municipality and the community regarding the appropriateness of these municipal plans and standards, and to assess whether there is scope to amend the designs with the aim of having a more cost-effective intervention with higher potential for employment generation and community participation, and which will result in less negative impact on the community and existing buildings. The important thing is to review the plans and standards at an early stage in order to avoid problems during implementation.

#### **Municipal plans and standards**

In one of the pilot projects, the improvement of the main access road was planned. The proposed design called for the gravelling of a 3m wide road with earthen side drains, which was decided upon based on the available budget and to allow the road to be improved all the way to the end of the tole. The municipal plans had not been sufficiently reviewed during the project preparation, however, and during project implementation it became clear that the standard for the right-of-way was 11 m and that a number of houses were located within this right-of-way. Although the access road linked up with an urban road of only 3.5 m wide connecting to the main highway, and considering it may have been possible to negotiate with the municipality regarding the adjustment of the standards to the existing situation and available budget, the community decided to rigorously apply the municipal standards, resulting in the demolition of over 10 homes. In addition, the expansion of the right-of-way meant that more earthwork was required than foreseen in the project, resulting in a lack of funding for the required road formation and side drain excavation. The review of the standards at an early stage could have avoided these problems, by ensuring a more detailed discussion between the project partners and investigating the possibilities for the application of lower standards as a first step in improving the existing road standards.

## **DESIGN OPTIONS**

Once the proposed intervention has been surveyed and all measurements are available, the designs and subsequently the cost and employment estimates can be prepared. In preparing the designs, different options can be applied and in order to determine the most appropriate design, different criteria need to be taken into account. This section will not go into all the different possible technical solutions to the multitude of needs that may be prioritised by a community, as this information is readily available from many other sources<sup>9</sup>. It only pertains to introduce those aspects of particular relevance to community infrastructure development in urban areas, where the main objective is the involvement of the community and its members through organisational strengthening, skills development, and employment creation together with the upgrading of the settlement.

Wherever practical, it is recommended to use standard designs approved by technical authorities. However, planners and engineers should be open to adapting these standard designs to suit the community needs and the available budget, as well as other concerns.

The available budget may form one of the most important factors in determining the design. It may be clear that different design options have different cost implications. With a budget that is generally limited and insufficient, the choice will often be between a cheaper design option that allows a greater number of people to be served but possibly at a lower standard, and a more expensive option that results in a higher standard but for fewer beneficiaries. An example is the improvement of a road, where options range from concrete or bitumen-based paving through brick or stone paving to gravelling. A black-topped road may provide a higher standard, but also implies a higher cost and thus a shorter length of road that may be improved compared to, for instance, gravelling. The design to be chosen should reflect a

<sup>9</sup> Recommended are the publication on “*Services for the urban poor - Technical guidelines for planners and engineers*” by Cotton and Tayler, WEDC (<http://wedc.lboro.ac.uk>) and the publications on “*Labour-based and community-managed upgrading of urban low-income settlements*” by Beusch and Winsvold, ILO (<http://www.ilo.org/eiip>).

balance between the standard required to properly address the communities' needs and the cost of that standard. In making this decision, the upgrading of the settlement should be considered to be an incremental process, where it is not necessary to achieve the optimal standard at once for each intervention, but it is preferable to bring the whole settlement to a higher standard and subsequently improve this standard further in the future.

#### **Incremental upgrading**

In one of the pilot projects in Janakpur, the community had requested the construction of lined drains and brick paving of a number of urban roads and paths in order to improve access, especially during the rainy season when the existing roads and paths turned to mud pools. The cost of this improvement was beyond the scope of the available budget, however. In coordination with the community it was therefore decided to change the design option and to use gravel as a surface material instead, which was found to be 6 times cheaper than the option of brick paving. Although not the desired option for the community, they preferred to gravel the roads and cover a larger length of roads in a larger part of the community, than use brick paving and only be able to address a small portion of the identified problem areas. The gravelling of the roads and paths together with the improved drainage was also expected to sufficiently improve access during the rainy season, whilst allowing the community to further improve the standard through brick paving or black-topping in the future.

Another very important aspect to take into account, especially with regard to the involvement of the community and its members during the implementation phase and the effect on employment and income generation, is the use of local resources, both human and material. One of the aims of community infrastructure development in urban areas, apart from the upgrading of the low-income settlements, is to spend as much as possible of the investment within the community and with local enterprises and businesses, thus creating employment and incomes and stimulating the local economy, bringing added benefits to the community beyond the infrastructure itself.

The design option can greatly influence to which degree community members are able to participate and in how far local (unskilled) labour can be used and local enterprises and businesses can be involved. Technologically complex designs will generally require skills and equipment that are not available or accessible by the community, implying the involvement of contractors from outside the community and a significant part of the investment being spent on equipment (for example, black-topping a road will require certain equipment and skills that are generally not found in low-income settlements, whereas brick paving can be done without any equipment by skilled community members).

The choice of materials will also influence the impact of the investment on the local economy and on employment generation, both in terms of the manufacturing or collection of the materials as well as in their application (for example, the use of sun-baked adobe bricks implies that these can be manufactured locally creating employment and incomes in the community both in the collection of the material and the manufacturing of the bricks, whilst the use of concrete bricks requires skills and equipment not always available locally and implies the use of cement that has to be imported from as far away as India). The design option should therefore aim to increase the use of local resources and subsequently the impact on employment generation and the local economy, whilst at the same time ensuring that the costs and quality of the work are appropriate. Designs that specify materials, equipment or expertise that needs to be sourced externally should be carefully examined before being chosen as a preferred option.

#### **Use of local resources**

In the example mentioned above where it was decided to apply a gravel surface in favour of brick paving, this decision not only had a very positive affect on the total cost of the project, but also signified that more employment was created, especially for unskilled workers in the spreading of the gravel. The collection of the gravel created additional indirect employment.

A final aspect to be taken into consideration is the effect of different designs on the ability of the communities to operate and maintain the resulting infrastructure and services, including the affordability of the services to be provided. This is very much linked to the type of intervention and the potential need to link up with existing municipal services (waste management, water supply, electricity, drainage, etc.) and to apply similar standards. But where feasible, the applied designs should be simple enough to allow for community involvement in the operation and maintenance of the resulting infrastructure, thus ensuring greater sustainability, whilst at the same time ensuring that costs of operation and maintenance of the created infrastructure are affordable to the whole community. The use of local resource-based designs will greatly facilitate community involvement in operation and maintenance, especially if they have already been involved in the implementation phase. But especially the costs of operation and maintenance should be kept to a minimum to avoid the resulting infrastructure only being used by a handful of community members able to afford it, or being left unused altogether due to a lack of funds to operate and maintain it. Apart from design implications, this aspect also requires that clear agreements be made with the community regarding the operation and maintenance of the infrastructure to be created, and the financing thereof (see also chapter 9).

The decision regarding the design option to be applied in a particular intervention should be discussed with the community (CBO), explaining the advantages and disadvantages of different options in terms of cost, coverage, employment potential, etc. This will ensure they can make a well-informed decision regarding the final design, and avoid the design being rejected at a later stage after time and effort has been spent on preparing cost and employment estimations, design drawings and project maps. The design options can already be discussed to a certain extent during the planning meeting with the community, and can be further discussed with the CBO members during the survey work. Additional design guidelines for different types of interventions are given in **Annex 3**.

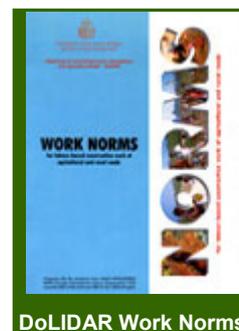
#### Discussing design options

In the example mentioned above, the change in design option from brick paving to gravelling was accepted by the community after the cost and employment implications had been explained, as well as the fact that gravelling did not preclude further improvement of the standard in the future. Another design option, however, where it was proposed to change the stone soling of the lined drains in favour of a sand bed in order to reduce costs, was rejected by the community as they were accustomed to the use of stone soling for such work. Despite the fact that this implied that the length of lined drains had to be reduced, they felt more confident with the original design option.

## COST AND EMPLOYMENT ESTIMATES

After deciding on the general design to be applied, this should be further elaborated using the results from the survey work and other inputs such as traffic flow, drainage volume, etc., resulting in the detailed design specifications. On the basis of these design specifications a cost estimate can be prepared based on the required inputs (labour, materials, tools & equipment, etc.). These cost and employment estimates should be reasonably accurate, but should not take too much time in their preparation.

For the calculation of the required inputs it is recommended to use existing norms suitable to the project area. The DoLIDAR publication on “*Work Norms for Agricultural and Rural Roads*”<sup>10</sup> is a very useful reference document providing work norms for many basic activities and as such can be applied to many urban works as well<sup>11</sup>. For building works this document is not the most suitable (even though it does include norms for brick work and concrete structures), and it is recommended to use the Nepal Government Norms.



<sup>10</sup> See [www.dolidar.gov.np](http://www.dolidar.gov.np)

<sup>11</sup> Another useful document is “Productivity Norms for labour-based construction” by Stiedl, Brudefors and Shone, ILO (<http://www.ilo.org/eiip>).

It is recommended to incorporate these norms into an Excel sheet to facilitate their use in the calculation of the required inputs and costs for different activities and interventions. By developing a spreadsheet incorporating the norms for the more common construction activities and subsequently including the required amounts of each activity for a specific intervention, the required inputs can easily be calculated, and recalculated in the case of adjustments to the quantities or design. By also adding the unit costs of the different inputs, the cost calculations can similarly be easily amended, taking account of any adjustments to the quantities, design or unit costs. The same norms also indicate the required inputs in terms of skilled and unskilled labour, thus allowing the estimation of the employment to be generated.

Although it is by no means necessary to develop such a spreadsheet or even do these calculations using a computer, in the case where adjustments are required to the quantities or the design, the use of such a spreadsheet facilitates the recalculation of required inputs, estimated costs and employment. Such a spreadsheet also allows the planner or engineer to play around with the variables in order to determine the impact on the cost and employment generation, thus allowing him/her to determine the most appropriate design.

#### **Cost and employment estimates**

For the pilot projects the DoLIDAR Work Norms were used. These were entered into a spreadsheet to facilitate the calculation of the required inputs for the different activities based on the design specifications. For certain project items the required inputs were calculated per metre, for instance the required inputs per metre of lined drain or per metre of gravelled road. By including the unit costs of the different inputs, the cost of the intervention could easily be calculated, taking into account any adjustments to the design or to work quantities.

This allowed the scope of the project (for instance the length of drain to be constructed) and the resulting inputs to be easily calculated based on need and available budget. The spreadsheet furthermore allowed the estimation of the employment to be generated as one of the required inputs, showing the impact of certain design changes on employment and income generation.

Apart from allowing the project engineers to play around with possible design options and their effect on cost and employment, it allowed any adjustments introduced by the community or municipality to be easily incorporated and their impact calculated, enabling quick feedback on the impact of certain changes (for instance the impact of including brick soling for the lined drains on the length of drains to be constructed within the available budget and on the employment to be generated in the community).

The unit costs to be used in the calculation of the cost estimates should be based on market rates, taking into account any foreseen (seasonal) changes. Although government rates generally exist, these are not always appropriate and may result in the budget being insufficient for procurement of the required inputs at the time of implementation. Especially for labour and much used materials such as cement, bricks, reinforcement steel, aggregate and sand, the impact of price changes can have a significant impact on the budget. To allow for such price changes and to ensure that the community is able to complete the project within the calculated budget, it is furthermore recommended to include a sufficiently sized budget line for contingencies and price increases.

### **DISCUSSION AND APPROVAL OF THE DESIGNS AND ESTIMATES**

The calculation of the cost and employment estimates will allow the planner or engineer to finalise the project design, adjusting the design parameters and scope of work to fit the available budget and to optimise employment creation. The resulting design and estimates subsequently need to be presented to the CBO and the wider community for their approval and possible adjustment.

The cost and employment estimates should be entered into a simple Bill of Quantities to facilitate the understanding by the CBO members and the wider community. This Bill of Quantities should indicate the separate project activities and sub-activities, and indicate the required amounts of materials and labour for each activity. The resulting Bill of Quantities will be used to present the final project design to the CBO and the wider community and, if unchanged, will form the basis for the contract document for the implementation of the project. Should any changes need to be made to the design or the scope of work based on the final preparation meeting with the community, the required inputs will need to be recalculated and the Bill of Quantities adjusted accordingly. An example Bill of Quantities is included in **Annex 4**.

A project map and design drawings should also be prepared to facilitate the presentation and understanding of the final intervention. The map should be prepared on a large sheet of paper (flipcharts stuck together work well) to allow it to be used in front of a large group of people. It should indicate the important landmarks in the community to allow people to locate themselves and their houses easily (the map prepared by the community can be used as a basis). It should also indicate the project intervention sites, using colour and graphics to indicate different infrastructure elements. It is further recommended to include summary data on the map regarding the intervention, such as the total cost, labour cost and material cost, estimated employment generation, and project design data (e.g. metres of lined drains to be created, number of culverts to be placed, and number of headwalls to be constructed). Design drawings should also be copied onto large sheets of paper, making them as simple as possible.



During the final preparation meeting with the community, the project map, design drawings and cost and employment estimates should be presented and explained in detail, giving the reasoning behind different design choices. The community members can subsequently discuss the different design options and possible adjustments with the planning team.



Once everybody has agreed to the project design, this should be recorded by having the community members sign the project documents, including the map and design drawings. If it is decided that certain amendments need to be made, these should be recorded in the project ledger and also signed by the community members. It is not recommended to have a subsequent meeting to present the project design with the incorporated amendments, unless the proposed amendments have significant implications with respect to, for instance, the budget.

## 5. COMMUNITY CONTRACTING

Community contracting is a term used to describe the direct involvement of the community in their own infrastructure improvement works. The aim of community infrastructure development is not only to assist the community in accessing improved services and infrastructure, but also to promote capacity building in the community and to provide experience in negotiating with government and non-government partners and in project management and work organisation. This section looks at the different ways of implementing the selected interventions, determining the most suitable forms of contracting and the arrangements that best benefit the community and assist in successfully completing the chosen project.

### CONTRACTING ARRANGEMENTS

The implementation of the selected interventions will generally require a mix of unskilled and skilled labour and technical expertise, locally and externally sourced materials, and equipment. These inputs all need to be procured or contracted in order to successfully carry out the selected intervention.

For the procurement and contracting of the required inputs for implementing the selected project, basically two options exist. These can be procured or contracted directly by the contracting agency, or else the community can be contracted to provide and manage these inputs (community contracting). Whereas the latter option will result in greater benefits accruing to the community beyond the construction of assets, especially in terms of skills development and organisational strengthening, it will require certain levels of organisation and experience on the part of the community in order to result in the successful completion of the project.

Depending on the organisational and technical capacity of the community and its members, and the technical complexity and the scope of the selected intervention, the following contracting arrangements may be used:

**1. Direct contracting by the contracting agency:** The contracting agency is responsible for all the procurement of materials and equipment and the contracting of unskilled and skilled labour, either through direct contracting of individual workers or through the contracting of large- or small-scale contractors and enterprises. To the extent possible the procurement and contracting should use resources (human and material) from within the community. This option is used where communities are very poorly organised and have little construction experience, and is also very suitable to post-crisis situations. Apart from the asset creation and possibly the generation of temporary employment, it provides few benefits for the community in terms of skills development and organisational strengthening.

**2. Labour-only community contract:** The community is contracted to provide and manage locally recruited unskilled labour required in the implementation of the contract, as well as possibly some skilled labour contracted on an individual basis. The other inputs are procured directly as in the example above. This option is practical where some degree of community organisation is present, but where technical skills and experience are still limited. This option helps to some degree in creating management skills in the community and strengthening community organisation.

**3. Labour and material community contract:** The community is contracted to provide and manage the locally recruited labour as well as procure materials. The materials to be procured may include only locally sourced materials (e.g. sand, gravel, etc.) or also the procurement of externally sourced materials from local providers (e.g. cement, reinforcement steel, etc.). The equipment and externally sourced technical expertise are

still contracted directly by the contracting agency. This option is suitable to communities that are sufficiently well organised to manage the purchase of goods and materials, but which may lack certain skills or access to equipment necessary for carrying out the full contract. The benefits to the community in terms of management skills and organisational strengthening are greater in this option.

**4. Full community contract:** Under a full community contract the community is responsible for providing the required labour, materials and equipment, including the overall management of the project and any sub-contracting of contractors or other specialised services. This option is suitable for communities that are internally well organised and capable (with support if necessary) of managing contracts, or for small-scale projects that require little capacity for their management. The potential additional benefits to the community in terms of skills development and organisational strengthening in the community are at their maximum in this option.

Although a full community contract will potentially create the most additional benefits for the community, the most suitable option will depend on the existing capabilities of the community and the characteristics of the selected intervention. Smaller, simpler and local resource-based projects will be more likely to be successfully implemented by a community, whilst poorly organised communities with few skilled community members will lack the capacity to adequately manage most of the project requirements.

Community contracting has certain legal implications, however. Due to the fact that there is only one community-based organisation representing the community, it will be necessary to apply single-source contracting with only one bidder. Instead of preparing a contract and putting it out to tender with competitive bidding, the rates need to be established as part of a negotiation between the contracting agency and the community (CBO). In order to do this, a special dispensation may be required.

A second legal implication arises where a project is split into smaller packages and contracted separately, either to make it more feasible for implementation by the community, or to allow for contracting of different parts of the works with either the community or directly with the private sector. Generally such division of works is not allowed under public procurement legislation, or only under certain circumstances<sup>12</sup>.

The contracting arrangements and their implications should be discussed in detail with the community. Together with the community, the skills, experience and assets available from within the community should be ascertained. Especially relevant is the availability of labour and service providers from within the community, in sufficient numbers and with the required skill levels and experience required for the implementation of the project. Depending on the resources available in the community and the degree of organisation in relation to the technical complexity and scope of the project, a specific contracting arrangement can be agreed upon. In doing so it is important to keep in mind that there are limitations to the organisational and technical capacities of communities and their community-based organisations. Their capacities should not be over-estimated or over-stretched to avoid disappointments for both the community and the contracting agency. The present guide will mainly deal with community contracting and full community contracts, although it will also give some guidelines on dealing with local small-scale contractors.

## **(SUB)CONTRACTING OF SERVICE PROVIDERS**

Service providers refer to enterprises, businesses and organised groups that may be (sub)contracted by either the community or the contracting agency to provide certain services required in the implementation of the project, or even in its subsequent operation or

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<sup>12</sup> For instance that the contract sum of the total project and the contract sums of the sub-projects fall under the same procurement and financial regulations.

maintenance. This does not refer to the contracting of individual workers, even where these are organised as a gang.

They are generally contracted to provide specific services related to the provision of materials, the implementation of works requiring certain technical expertise or equipment, the execution of operational or maintenance activities, but also for providing technical support or training to the community or the contracting agency.

These service providers may be organised groups of unskilled and/or skilled community members contracted to provide a specific service (this is very common for maintenance work or specific operational services such as waste management of water provision), or more formal enterprises and business such as contractors or material suppliers. The size of these companies may also vary from very small-scale contractors or shop keepers to large-scale construction companies, and may come from within the community or from outside the community. This will depend on the complexity of the required services and the capacity of existing service providers in the community.

For most community infrastructure development projects, small-scale local providers from within the community or from nearby communities can be used. Depending on the capacity of the community and the scope and complexity of the services to be provided, these service providers will need to be contracted and supervised by the contracting agency or sub-contracted by the community.

## FINANCING ARRANGEMENTS

In the preparation of the cost estimates, the total cost of the project is determined, including the cost of labour. In many cases a contribution from the community is required, generally justified by the argument that such a “voluntary” contribution confirms the interest of the community in the project (thus ensuring greater sustainability and more interest in proper maintenance and operation) and allows the limited resources available to local authorities to benefit a greater number of communities. On the other hand, however, it can be said it is the role of the local authorities to provide basic services to the communities within their area of jurisdiction using the different income sources available to them, and that such additional contributions should not be required, especially since this practice is generally only applied to poor communities.

Part of the aim of community infrastructure development and supporting the community to implement the works is to provide paid employment and bring cash to the local economy. There is also a general understanding that people should be paid for their labour inputs when participating in the construction of public infrastructure, whilst a fair contribution of voluntary inputs for the creation of assets regarded to be owned by individuals or a limited group of users can be negotiated and agreed upon. It is therefore not recommended to include “voluntary” contributions, especially as these tend to complicate the implementation of the projects, specifically where the different community members are each required to provide a certain part of the contribution<sup>13</sup>. Where community contributions are required by the funding or contracting agency, it is recommended to assign these to the operation and maintenance phase where they can provide initial capital or resources (see also chapter 9). If a contribution is to be included, then this should be valued and included in the costing and the contract document.

In defining the final project cost, it is also important to fix the schedule of rates for the different inputs required. Whilst the amounts of work have been measured and the quantities

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<sup>13</sup> In such cases the contribution should be carefully organized so that each member of the community (or each beneficiary of the project) contributes equally, and that the poorest do not end up providing a larger contribution as a result of being in greater need of the intervention or having more time available because they are under or unemployed.

of the required inputs have been calculated using the work norms during the design phase, the proper costing of these inputs will determine whether or not the community (or contractor) will be able to carry out the project within the stipulated budget. A negotiated and agreed schedule of rates means that any contract can then be priced based on the quantities of work to be carried out, and that any additional work can be fairly priced based on the existing rates. These rates should be reflected in the Bill of Quantities that forms part of the contract (see also **Annex 4** for an example Bill of Quantities). As mentioned earlier, these rates should be based on existing market rates and foreseeable changes to these, rather than fixed government rates. Any significant changes in the market rates during implementation should be looked at in detail, assessing whether it will still be feasible to complete the project within the assigned project budget.

## PAYMENT ARRANGEMENTS

Communities as well as small-scale contractors generally lack capital or access to capital to allow them to start work, as opposed to larger contractors. In order to be able to start works, a sufficiently large advance payment is required which can be used to purchase materials, tools and sub-contract any services required during the first period of project implementation. Without such an appropriate advance payment, it may not be possible for the community to start works.

Contract sums for community infrastructure development projects are generally quite small and subsequent payments are dependant on satisfactory progress, therefore the risk of providing advance payments will be minimal. Any guarantees normally required for advance payments (as is often the case when working with the private sector) should be avoided where possible, or guarantee forms should be accepted that can be provided more easily by communities.

### **Advance payments**

In the pilot projects the maximum admissible advance payment under ILO regulations was 25% of the contract sum and this was therefore applied to all pilot projects. This allowed the communities to purchase the required tools and first-aid kit, as well as pay for the materials and labour required for the initial project activities. Delays in the bank transfer of these advance payments seriously jeopardised the projects, however, as the communities were unable to start work due to a lack of access to start-up capital. As a result the start of work was delayed by a month and a half and was only able to start in the month of July. By this time the rainy season had started and the works had to be postponed even further and most only started in September after the rainy season had ended. Although the contracts were signed on the first of May, work only started more than 4 months later due to problems with the advance payments.

With regards to the subsequent interim payments against the satisfactory progress of work, the timeliness of these payments is of great importance. Where payments are delayed due to excessive administrative procedures, this may cause project activities to be ceased due to a lack of funds as communities often lack access to capital or credit to continue work while awaiting interim payments to be paid. Simple payment procedures should therefore be applied in as far as possible, looking for means of limiting delays between payment requests and the actual payment being received in the bank account of the CBO.

A similar issue is the final project payment, which is generally only made after the whole project has been completed to the satisfaction of the contracting agency, or alternatively a guarantee is required from the community or contractor which is only released after the approval of the work done. In either case, it means the community has to complete the works while the funds are still with the contracting agency. Given the aforementioned lack of access to capital and credit, this can be very complicated for a community to achieve, and can seriously jeopardise the successful completion of the project. This final payment or the required guarantee should therefore be limited as much as possible.

### Interim and final payments

The administrative procedures of the ILO together with the time required for bank transfers between different banks in Nepal resulted in the need for an average of 4 weeks between the submission of the payment request and the actual receipt of funds in the bank account of the CBO's. Due to the delays in starting the work as a result of the problems encountered with the advance payments, the time left to complete the projects was very limited (all projects had to be completed by December 31<sup>st</sup>). It was therefore decided to bring back the number of interim payments from 2 to 1. At the same time, given the inability of the communities to carry out works without project funds, it was also decided to limit the size of the final payment and thus avoid problems in the completion of the final project activities. In line with ILO regulations, the final payment was reduced to the minimum permissible of 10% of the contract sum. As a result the CBO's received their second payment after the initial progress using the advance payment had been found to be satisfactory. This second payment covered 65% of the contract sum and allowed the CBO's to complete the project, using credit from local suppliers and labourers to cover the final 10% of project costs. By limiting the number of interim payments the delays in project implementation were reduced, although most communities were still forced to cease work while awaiting the interim payment to be made.

The issue of timely and adequate payments is crucial to the successful implementation of community contracting, even more so than for the contracting of local small-scale contractors. The payment arrangements should in as far as possible avoid the need for the community to access credit or advance project costs, providing a suitable advance payment and limiting the size of the final payment. Payments should be timely in order to avoid work stoppages due to a lack of funding, simplifying administrative procedures and limiting the number of interim payments required.

## CONTRACT DOCUMENT

Contracts form the legal agreement between two or more parties. They essentially describe the type and amount of works to be provided and the price agreed for such services. In addition the parties agree to a set of conditions under which the agreement is executed. Under community contracting, the community will act both as the beneficiary of the project and as the contractor, and under such circumstances the community contract forms an important instrument to define the roles, rights and obligations of the different contract partners, create greater transparency and avoid conflicts of interest.

In general, communities living in low-income settlements have little or no experience in working according to written agreements. The contract document should therefore be kept as simple as possible and the entire concept of contracts should be well explained and discussed before an agreement is signed. Although for contracting with the private sector standard contract documents are generally used that are familiar to all parties and of which the wording is clearly understood (and the legal interpretation known), communities cannot be expected to have a similar understanding of these documents. Where such general conditions of contract are used, care should be taken to ensure these are as simple as possible and that the included clauses are relevant to the project activities and type of contracting involved, developing simplified standard documents for community contracting where deemed necessary. In any case, the standard clauses should be explained in detail to the community members to make sure they are well understood before the contract is signed.

### General conditions of contract

In the pilot projects use was made of the ILO Service Contract. This contract type is not specific to construction works or community contracting and is applied to a wide range of contract types and sizes. As a result, the standard terms and conditions for these contracts contain a number of clauses that are irrelevant for community contracting (e.g. on copyright) or can seem intimidating (e.g. on dispute arbitration in Geneva). At the same time some clauses are very relevant (e.g. on labour conditions). It was not possible to adjust these standard terms and conditions, however, and therefore the clauses and their implications were explained in detail to the community members, focusing on those clauses of greater relevance to the projects concerned. **Annex 5** contains a simplified standard contract template based on the experience obtained in the pilots.

Apart from the standard part or general conditions of the contract, contract documents also contain the project details specific to the particular project. These may be included in a separate annex to the main contract document, but may also form an integral part of it. These specific project details refer to the project activities to be carried out, the project duration and timing of activities, the contract sum and payment arrangements, the regulations regarding the procurement of materials and goods and the recruitment of labour, and any other specific arrangements. When applying local resource-based technology, it is important to include specific clauses related to the use of local labour, labour recruitment procedures, and the keeping of employment records. This part of the contract should also contain the Bill of Quantities prepared for the project, a project map indicating the location of the different project sites, a workplan indicating the timing of the different project activities and the technical design drawings. **Annex 5** contains an example contract document (this is an amended version of the contract document used in one of the pilot projects, excluding the standard clauses or general conditions of contract), whilst **Annex 4**, **Annex 6**, **Annex 7** and **Annex 8** contain respectively the Bill of Quantities, the project map, the workplan and the design drawings that form part of the contract.

## SIGNING OF THE CONTRACT

Before the contract is signed, the contract document and any annexes need to be discussed with the community and the CBO. For this it is recommended to hold a meeting with the community as a whole to explain the different clauses of the contract document, paying particular attention to the payments and payment schedule, the project activities and required project outputs, and the use of local labour and labour recruitment. This will create greater transparency with regard to the project, the use of the project funds and the creation of employment in the project, and will allow the community and CBO members to question any parts of the contract. Any amendments considered necessary can be incorporated into the contract document before it is signed by both parties.



Explanation of the contract document

## 6. CAPACITY BUILDING

This chapter briefly looks at the need for capacity building in community infrastructure development projects. It does not pertain to give detailed training guidelines, but merely identifies those areas where capacity building is likely to be required.

### CAPACITY BUILDING FOR CBO'S

Community participation in all aspects of community infrastructure development leads to improved capacities of individuals and the community as a whole in terms of organisational and technical skills as well as negotiation skills. However, these skills will generally be very limited at the beginning of their involvement, and the provision of technical support and capacity building will therefore be core to the successful completion of the project. In particular, CBO members will require training in the following aspects:

- Bookkeeping, employment monitoring and reporting
- Work organisation and planning
- Labour recruitment and supervision
- Procurement of goods and materials
- Subcontracting of service providers and their supervision
- Operation and maintenance

In building these capacities, traditional classroom training should be avoided to the extent possible and the training should focus on on-the-job training in the implementation of the project, possibly complemented by exchange visits to other communities that already have experience in community infrastructure development. The training can be provided by municipal staff (e.g. Site Supervisor, Social Mobiliser) or can be contracted out to external service providers (e.g. NGO, private sector).

Apart from training, regular and continuous supervision of the works and the reporting being carried out by the CBO is also required. Any problems can thus be identified and addressed at an early stage and needs for additional training can be identified.

### CAPACITY BUILDING OF SMALL-SCALE CONTRACTORS

Small-scale contractors are often involved in community infrastructure development in urban areas, either contracted directly by the contracting agency or subcontracted by the community. These small-scale contractors are often in need of capacity building to improve their performance in the project. Even where small-scale contractors have sufficient construction skills to take on a contract, what is often missing is experience in managing their business and in managing contracts. The ability to properly manage contracts will ensure that the contractor is able to prepare a suitable bid that allows him/her to complete the work within the approved budget and to the agreed standard<sup>14</sup>, and is able to properly manage the works allowing the work to be completed on time, within budget and to the agreed standard. The ability to properly manage his/her business, especially regarding how to manage the fixed costs in the time between contracts, will allow contractors to make a decent living out of being a contractor on a more permanent basis, thus creating employment and incomes beyond the scope of the project. A number of training courses have been developed by the ILO specifically tailored to the needs of small-scale contractors including both country specific and generic literature (an example is ILO's Start and Improve Your Construction Business - SIYCB)<sup>15</sup>.

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<sup>14</sup> Lack of experience in bidding may result in the preparation of a bid that is too low, resulting in the contractor making little or no profit, and possibly even losing money, or having to opt to cut corners in implementation.

<sup>15</sup> See [www.ilo.org/eiip](http://www.ilo.org/eiip).

## TRAINING OF WORKERS

Many workers in labour-based projects are unskilled and will require some basic training to properly carry out their work. This is related to properly setting out and measuring work, but also to the proper use of tools. This can often be achieved by training gang leaders who are subsequently responsible for passing on their acquired knowledge to the workers in their gang.

But also skilled labourers will require additional training. Apart from the small-scale contractors mentioned above, community infrastructure development projects will make much use of local individuals with specific skills (brick-laying, pipe-fitting, etc.) to carry out particular tasks. By providing additional technical training to such community members the quality of the work can be improved and project costs can often be reduced.

### **Worker training**

In one of the pilot projects a community building was being constructed. The bricks purchased by the CBO differed in size, a problem that is common in Janakpur municipality. The skilled labour responsible for the brickwork was solving this problem by keeping one side of the double-brick wall smooth, but as a result the other side of the wall was very uneven. The ILO engineers explained how having unskilled labourers sort the bricks in two size categories and using these two sizes in a planned manner could result in a smoother surface, which would result in less need for plastering material later on, and thus lower costs. This method was subsequently applied in the remainder of the project.

## OPERATION AND MAINTENANCE

For the successful implementation of operation and maintenance activities after the completion of the project, training will also be necessary. This will generally involve both management training aimed at the CBO or whoever is made responsible for managing the operation and maintenance activities (e.g. small enterprise, community group), as well as at those made responsible for implementing these activities (e.g. small-scale contractor, community worker group, microenterprise). More information on operation and maintenance can be found in chapter 9 of this guide.

## 7. WORK IMPLEMENTATION

In the implementation of community infrastructure development projects, there are a few issues of particular concern. These issues should also be taken into account in the training of CBO's and the supervision of the works.

### RECRUITMENT AND PAYMENT OF WORKERS

Labour forms an important input into labour- or local resource-based community infrastructure development projects. The use of labour-based technologies requires a number of issues to be taken into account, however, to ensure that the resulting works are cost-effective and of good quality, and to ensure the fair creation of employment under proper working conditions.

In the recruitment of labour, it is important to provide equal opportunities to all those seeking employment. At the same time, it may be desirable to encourage the employment of members of vulnerable groups such as women, Dalit or Janajati, or to limit employment opportunities to the poorest in the community or those without other employment opportunities (see also chapter 2). The procedures and criteria for the recruitment of workers, both skilled and unskilled, should be discussed and agreed upon within the community in order to ensure a fair distribution of employment and income earning opportunities that the different members of the community can agree to. This will avoid problems arising during implementation with unsatisfied community members. Important labour conditions relevant to the recruitment of labour are the prevention of child labour<sup>16</sup> or forced labour<sup>17</sup> and the prevention of discrimination<sup>18</sup>.

The payment of different workers should also be the same for work of equal value<sup>19</sup>. This entails that men and women, lower and upper caste, etc. should be paid the same for work of a similar nature. Only in the case of skilled workers should higher wages be paid. The payment should furthermore be based on the minimum wage or on the district daily wage rate for the different labour categories involved<sup>20</sup>.

An important aspect of the payment of workers is the basis of this payment and the organisation of the workforce. In principle there are three main payment methods that can be used in labour-based works:

**1. Daily paid work**, whereby the worker is paid on a daily basis for a specific number of hours worked, regardless of his/her outputs. Although very common, this payment method requires a high degree of monitoring to ensure that workers are working satisfactorily, and the number of workers or workdays required are hard to plan as work output constantly varies.

**2. Task work**, whereby an individual worker or a group of workers is given a clearly defined task or amount of work to be completed, against which a specific payment will be made. Such tasks can generally be completed in a day or in a number of consecutive days, and payments are therefore based on a number of times the agreed daily wage rate. This payment method has the advantage that it requires little monitoring (only the assessment of the completed task) and allows for easier planning as the input-output

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<sup>16</sup> Minimum Age Convention (C138) and Worst Forms of Child Labour Convention (C182) of the ILO (<http://www.ilo.org/ilolex/index.htm>)

<sup>17</sup> Forced Labour Convention (C29) and Abolition of Forced Labour Convention (C105) of the ILO (<http://www.ilo.org/ilolex/index.htm>)

<sup>18</sup> Discrimination (Employment and Occupation) Convention (C111) and Termination of Employment Convention (C158) of the ILO (<http://www.ilo.org/ilolex/index.htm>)

<sup>19</sup> Equal Remuneration Convention (C100) of the ILO (<http://www.ilo.org/ilolex/index.htm>)

<sup>20</sup> Protection of Wages Convention (C95) and Minimum Wage Fixing Convention (C131) of the ILO (<http://www.ilo.org/ilolex/index.htm>)

relationship is fixed. It is also popular with workers as it enables them to complete the work and leave earlier while still receiving the full daily wage.

**3. Piece work**, which is a variation of the task work whereby the individual worker or group of workers is paid per unit of output. The worker is generally free to decide how many “pieces” to complete and whether or not to continue working for longer. This method is more difficult to organise and more complicated to monitor, however, and has been known to lead to self-exploitation.

Task work is the preferred option in labour-based or community managed projects, as it allows for easy planning and monitoring, while at the same time being widely accepted by workers. The fixing of the task size should be fair, however, and the payment should be in relation to the time required to complete the task. The fixing of task sizes can either be based on existing productivity norms such as the DoLIDAR Work Norms mentioned earlier<sup>21</sup>, or else tasks can be set by initially applying daily paid work and recording the average daily productivity achieved. In either case, the appropriateness of the task sizes should be monitored to ensure that they are fair to both the worker (not too high) and the project (not too low). These tasks will also need to be properly set out to allow the workers to understand the amount of work they need to complete.

When organising the workers, it may furthermore be desirable to work with labour groups or gangs for specific tasks. Especially where activities involve different types of work or where both skilled and unskilled labour is required, it can be beneficial to assign the work to a group of workers. For example, the lining of drains implies some work to be carried out by skilled workers whilst other parts of the work can be carried out by unskilled labour. By grouping the work together a task can be set as the completion of a certain length of lined drain and assigned to a gang of skilled and unskilled labour, thus greatly facilitating the planning and the monitoring required.

In organising the labour gangs care must be taken to make sure that the best use is made of the labour, materials, tools and equipment available. It is therefore important to take into account the order in which work operations and activities should be carried out and the required amount of labour and other inputs for each activity. By doing so, gang sizes for different activities can be balanced so that work operations proceed at the same pace on average, avoiding one gang having to wait and standing idle because the previous activity has not been completed<sup>22</sup>. It is also recommended to assign a gang leader for each gang, who will receive additional training on the organisation of work within the gang and the proper technical implementation of the task assigned. The gang leader will also receive the work instructions and hand these on to the workers in the gang.

The Site Supervisor should be responsible for setting the task sizes as well as setting out the tasks and organising the labour gangs, at least initially. At a later stage the CBO may be made responsible for this, with the Site Supervisor simply monitoring the proper application. It is recommended to provide the CBO with on-the-job training regarding the use of task work and the creation of labour gangs.

The Site Supervisor will be employed by the contracting agency (either a staff member of the contracting agency or a consultant hired specifically for this purpose). Alternatively, the cost of a Site Supervisor can be included in the project cost, and the CBO made responsible for contracting him/her. The former option is recommended, however, as it will ensure proper supervision is provided and at the same time allow the contracting agency to monitor the

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<sup>21</sup> “Work norms for Agricultural and rural roads”, DoLIDAR ([www.dolidar.gov.np](http://www.dolidar.gov.np)). This document stipulates the amount of labour (workdays) required for different activities. Another useful document is “Productivity Norms for labour-based construction” by Stiedl, Brudefors and Shone, ILO (<http://www.ilo.org/eiip>).

<sup>22</sup> For instance, that the gang responsible for constructing the lined drains cannot proceed because the gang responsible for the excavation of the drains is proceeding too slowly.

progress and quality of work. It furthermore allows the Site Supervisor to supervise different projects at the same time and thus more effectively divide his/her time according to need.

### Site Supervisor

In the pilot projects an allocation was originally included in the Bill of Quantities of each pilot project for the contracting of a Site Supervisor. Because the Site Supervisor was not required on a daily basis but was foreseen to be needed at different moments during the whole project duration, a single Site Supervisor for all four pilot projects was deemed more effective and efficient. To facilitate this and to ensure a fair distribution of his/her time between the different communities, the Site Supervisor was contracted directly by the ILO.

In implementing the project, the safety and health of the workers should also be ensured<sup>23</sup>. This involves the use of protective clothing and proper tools, but also the availability of a first-aid kit and clean drinking water at the work site. An important issue is workers' compensation for work accidents, where the costs of treating work related accidents should be covered in some way. Although a community may feel a collective responsibility to anyone who is accidentally injured, a more formal arrangement is recommended for paying medical bills and for compensating lost wages. This may be done by taking out insurance for the workers of the project, or alternatively by setting aside a certain percentage of the contract sum as an insurance fund to be used in the case of accidents. It is recommended that arrangements related to insurance and basic safety and health be put in place during project implementation, and that these be reflected in the contract document. The costs of these measures should be covered by the contract, however.

### Worker safety and health

In the pilot projects the CBO's were required to purchase a first-aid kit and make this available at the work site at all times. In addition, between 1.5% and 2% of the direct project costs was set aside as an insurance fund to be used to cover the costs of any work related accidents. This was done as experience with insurance companies in similar projects had not been very positive. This also allowed the remaining insurance funds to be used by the community for the extension of the project scope after the work had been completed. The insurance fund was luckily only used in one occasion, where a wall collapsed during excavation of drainage canals, injuring a number of workers. The costs of treatment were fully paid from this insurance fund. The costs of both the first-aid kit and the insurance fund were covered in the contract sum.

Other labour standards and working conditions to be taken into account in community infrastructure development projects are regarding working hours<sup>24</sup>, freedom of association<sup>25</sup> and public works<sup>26</sup>.

One important aspect in the implementation of community infrastructure development in urban areas, whether implemented by community contracting or by contractors, is to ensure that the employment potential of the intervention is actually achieved and that no equipment is used except where required for quality or cost reasons (e.g. the transport of materials over larger distances or the compaction of larger surface areas). Where equipment is used in other cases, it is likely to replace labour, resulting in lower employment levels and less incomes for the communities involved. It is therefore important to emphasize the use of labour-based methods in the contract document, and to also explain this in detail to the CBO and/or contractors.

<sup>23</sup> Workmen's Compensation (Accidents) Convention (C17), Maternity Protection Convention (Revised) (C103) and Safety and Health in Construction Convention (C167) of the ILO (<http://www.ilo.org/ilolex>)

<sup>24</sup> Hours of Work (Industry) Convention (C1), Weekly Rest (Industry) Convention (C14), Forty-Hour Week Convention (C47) and Holidays with Pay Convention (Revised) (C132) of the ILO (<http://www.ilo.org/ilolex>)

<sup>25</sup> Freedom of Association and Protection of the Right to Organise Convention (C87), Right to Organise and Collective Bargaining Convention (C98), Rural Workers' Organisations Convention (C141) and Termination of Employment Convention (C158) of the ILO (<http://www.ilo.org/ilolex>)

<sup>26</sup> Labour Clauses (Public Contracts) Convention (C94) of the ILO (<http://www.ilo.org/ilolex>)

### **Use of labour-based methods**

In one of the pilot projects, the proposed road intervention regarding the improvement of a 3m wide access road had to be modified due to the fact that the municipal plans stated that the particular road should have a right-of-way of 11 m. As a result of this change, the amount of work to be carried out increased significantly. The CBO concluded that the available budget would not allow all the work to be carried out, but unfortunately did not discuss this with the contracting agency (ILO). Instead the CBO approached the municipality and the Department of Roads and requested them to provide an excavator and a grader to carry out the side drain excavation and the initial levelling of the road surface. Although this decision is understandable, as the use of equipment only implied a small cost for fuel (the actual costs of using equipment were not passed on to the community), it did signify a breach of the contract document which stated that the work would be carried out using local labour. After ensuring that the community understood that labour-based methods had to be used for the remainder of the works (except for the transport of gravel and the compaction of the gravel layer), it was decided to carry on with the project, but the use of equipment signified that part of the potential employment and income generation of the project was not achieved, thus resulting in fewer benefits for the community members. A better explanation of the contract document, the responsibilities of the community and the benefits of labour-based methods may have avoided this situation, and have encouraged the community to discuss the problem with the contracting agency and thus possibly come to a more beneficial solution.

## **PROCUREMENT OF MATERIALS**

In the procurement of the materials and other goods required for the implementation of the project, quality assurance is very important. The CBO should be given support in the quality assessment of materials from different providers, as well as the testing of the materials delivered to the work site. In certain cases community members with experience in construction will be able to do this assessment, but it is recommended that the municipal engineer or technician accompany the CBO to ascertain that the materials are of suitable quality, and avoid extra costs having to be made due to the use of faulty materials.

To ensure transparency in the use of the project funds, it is furthermore recommended that at least three quotations from different providers be obtained before any single provider is selected (this may already be a requirement from the contracting agency). The decision to go for a particular provider (based on cost and quality) should be explained in the project ledger and accompanied by the quotations obtained, and thus be available for inspection by the contracting agency or the community.

The timely procurement of materials should also be ensured, avoiding delays in project implementation due to certain materials running out. Account should be taken of delays in payments from the contracting agency and in delivery of the materials by the provider. Furthermore, a proper balance of the different materials and other inputs should be made to ensure that work is not halted due to the lack of one specific input (or funds for its purchase) whilst other materials are present in abundance. Assistance in the planned use of available funding for the procurement of materials and other inputs, using the Bill of Quantities and the workplan as a basis, is therefore generally required. This also includes the timely request of the next payment, as soon as the requirements for that payment are fulfilled.

## **SUBCONTRACTING**

In cases where subcontracting of contractors or other service providers is required, the CBO is likely to need similar assistance as in the procurement of materials. The CBO will require assistance in the preparation of a bill of quantities and of a contract document, as well as in asking for bids and evaluating the bids received in terms of cost and quality. These are issues most CBO members will have little to no experience in.

But also in the implementation of the subcontracted work, the CBO will require assistance in the monitoring and evaluation of the work carried out by the contractor or service provider. Although the technical assessment and quality assurance may be carried out by experienced

members of the community, the preparation of interim certificates and payments based on the satisfactorily completed work may be beyond the scope of the CBO.

## PROJECT AMENDMENTS

In the course of project implementation, circumstances are bound to arise that require amendments to be made to the project and the contract document. These may involve additional unforeseen work, changes in unit rates, changes in the location of project interventions, etc. Such changes have to be discussed between the CBO and the contracting agency, and depending on the nature of the required change and the available budget, it may be necessary to increase the budget, decrease the scope of the work or simply change project activities or locations. Such amendments could also involve changes to the project duration, payment arrangements or payment procedures. The important thing is that such changes be formalised by means of an addendum to the contract or at least by noting it in the project ledger (signed by both the CBO and the contracting agency). By doing so, problems and misunderstandings further down the road can be avoided. An example of such an addendum can be found in **Annex 9**.

### **Project amendments**

Due to the initial delays with the advance payment incurred in the pilot projects, it was necessary to extend the end-date of the contracts. It was furthermore decided to decrease the number of interim payments in order to limit similar delays in the rest of the project.

In three of the four pilot projects changes were made to the technical designs and the scope of the works. In the two projects with lined drains, it was decided to apply stone soling instead of a sand layer for the base of the drain due to the poor carrying capacity of the soil, increasing the cost of the work and resulting in the need to decrease the length of drains to be constructed. In addition, in one of these projects the land owners were not giving permission for the construction of drain outlets on their land, requiring a revision of the location of these outlets. In the third project the existing foundation for the community building was found to be weaker than expected, necessitating the construction of a reinforced tie beam and requiring a revision of the bill of quantities.

These changes to the project design, payment procedures and project duration were formalised by means of simple addenda to the contracts.

## 8. MONITORING AND REPORTING

For the successful implementation of community infrastructure development projects, proper monitoring and reporting is essential. Monitoring is not only important for the contracting agency to know how their money is being used and how the project is progressing, but also for the community and the project beneficiaries to be regularly informed on progress and problems encountered, but especially regarding the use of the project funds by the CBO.

### MONITORING

Monitoring of community infrastructure development projects involves two aspects, namely the monitoring of the progress of works in terms of quality and quantity together with the related costs, but also the wider impact on the community in terms of employment and income generation.

Proper monitoring will therefore require that the CBO records the procurement and use of the different inputs and that the outputs are regularly measured during site inspections. In order to facilitate the monitoring of the inputs by the CBO, it is recommended to provide them with a “Project Book” with suitable sections for recording the following items:

- The receipt and expenditure of project funds (the bookkeeping)
- The procurement of the different materials (quantities and costs)
- The weekly use of the procured materials
- The weekly employment figures (workdays and costs)
- The weekly output

It is recommended that this data is regularly verified by the Site Supervisor. These data will allow the proper use of funds to be verified (income versus expenditure); the costs of materials, labour and other inputs to be compared to the unit rates applied in the bill of quantities; the use of these inputs to be compared with the productivity norms applied in the bill of quantities (also allowing task rates to be checked); the employment figures to be compared with the employment estimates; the project expenditure to be compared with the overall cost estimates, and the project progress to be compared with the workplan.

The data required for the monitoring should be recorded in the Project Book by the CBO. This Project Book should also provide space for the recording of any decisions made by the CBO, for instance regarding the procurement of materials from a particular supplier. The data from the Project Book should be copied by the Site Supervisor on a fortnightly basis in order for it to be analysed, comparing it to the project estimates. It is recommended to use a monitoring spreadsheet for this, which allows most of the comparisons mentioned above to be easily made (an example monitoring spreadsheet is given in **Annex 10**).

Once the monitoring spreadsheet has been properly prepared (using the bill of quantities and the workplan as a basis), only the actual progress, expenditure and employment creation need to be entered every fortnight to allow the project progress and the use of funds and employment to be easily monitored. The use of such a spreadsheet will allow conclusions to be easily made regarding project progress (actual vs planned), project expenditure (actual vs expected) and use of inputs (actual vs expected).

#### **Project monitoring**

Due to the delays with the advance payments and the subsequent rainy season, the pilot projects only really started in September. The workplan was therefore adapted and to ensure the projects would be completed on time, it was considered necessary to closely monitor the project progress. A monitoring format was subsequently developed (see **Annex 10**), and although this format was initially only developed to assess the overall progress of the project implementation, it was later expanded to also provide information on actual versus expected costs and employment

generation. This monitoring tool proved to be very useful and easy to use. The actual progress, workdays generated and expenditure were updated on a fortnightly basis and the spreadsheet on which the monitoring format was based automatically calculated the other values.

From the monitoring report in **Annex 10**, for example, it could be concluded that progress in the first two weeks of September was much higher than planned, resulting in just over 27% of the total project being completed (in terms of costs). It also showed that the actual expenditure was lower than the total of the payments received at that time, indicating that funds were still available. At the same time, however, the expected expenditure on the basis of the amount of work completed was found to be far higher than the actual expenditure and even than the amount of funds received. Upon further investigation it was found that this was the result of the CBO having been able to purchase materials on credit while awaiting the second payment, and still having some remaining funds for the payment of labourers.

A last conclusion that could be made was that the skilled labour levels were lower than expected, whilst the unskilled labour levels were higher - this was favourable as it reduced costs and created more employment for the (generally poorer) unskilled labourers, but it was decided to verify the quality of the works and to ensure sufficient skilled labour was used (in one of the other pilot projects the opposite was the case with skilled labour levels being higher than expected, indicating that probably skilled labourers were carrying out tasks that could easily be carried out by unskilled labour, thus increasing the labour costs of the project and jeopardising the successful completion of the project).

As can be seen from the example above, the analysis of the monitoring data allows potential problems to be identified and addressed at an early stage. The cause of the identified discrepancies should be verified with the CBO's and in the case an actual problem is identified, a change in the project implementation should be agreed upon, or where necessary an amendment to the project design.

Apart from the use of the monitoring data by the contracting agency to assess progress and the proper use of inputs and project funds, the results should also be published regularly by the CBO for the community to see. This will allow the community members to be informed of the project progress, the use of project funds and the creation of employment, thus increasing the project transparency.

## **PROJECT EXPENDITURE AND PUBLIC AUDIT**

The proper use of the project funds is of course core to any project, and this needs to be demonstrated. In part this can be done using the monitoring data, but a greater degree of detail is required regarding the different payments made using project funds. The CBO's should therefore be required to present receipts for all expenditures, no matter how small or for what purpose. These may be formal invoices from businesses or suppliers, but can also be simple receipts signed by workers of the project indicating the number of days worked and the payment received.

The project expenditure should be checked by the contracting agency whenever a subsequent payment is requested, ensuring that the project expenditure is in line with the receipts presented by the CBO and that multiple quotations are available for those expenditures that require them. For the final payment the total expenditure will be compared to all the receipts presented by the CBO, but also the amounts of inputs purchased will be compared to the expected and reported use of those inputs. When all is found in order and the work has been completed to the satisfaction of the contracting agency, the final payment will be made.

Apart from such an audit by the contracting agency, it is recommended to also carry out a public audit with participation by the wider community. In a community meeting after completion of the project, the CBO should present the resulting output of the project and how this has been achieved through the use of the project funds. This presentation should be

simple and make use of graphical tools to allow also the illiterate community members to understand. The effect of such a public audit will be to enhance the transparency created through the regular reporting on project progress, and ensure that all community members understand how the project funds were used and that no misuse has taken place.

The CBO will require assistance, however, in preparing the documentation for both the public audit and the formal audit by the contracting agency. It is recommended that the Site Supervisor or the Social Mobiliser assist them in this.

#### **Project transparency**

In the pilot projects, public audits were held after each new payment request in order to present to the community how the funds from the previous payment had been used. In these public audits the use of funds, the generation of workdays and the progress of works was presented in general terms and, where desired, the community could examine the individual receipts and quotations. This resulted in a very transparent use of project funds, which was greatly appreciated by the community.

Towards the end of the pilots, two other wards in Janakpur municipality had expressed their desire to the municipality to work with community contracts. Upon further investigation it turned out that the reason for wishing to use community contracts was the high level of transparency achieved in the pilot projects. In projects carried out by contractors, communities were generally not informed of the project budget or even of the scope of the project, and had no influence on the proper use of the project funds and the quality of the works. Upon learning of the alternative of community contracting from the pilot communities, they were eager to apply this in their community as well.

## 9. OPERATION AND MAINTENANCE

This chapter looks at the financing, management and implementation of operation and maintenance activities related to the community infrastructure development in urban areas. It must be emphasized that proper operation and maintenance does not just happen, but that proper management arrangements need to be put in place if they are to succeed. Determining suitable arrangements for operation and maintenance at an early stage of the community infrastructure development project, with participation of the different partners that are to be involved in the operation and maintenance, is therefore crucial in ensuring the sustained benefits of the infrastructure after the project has been completed.

### OPERATION AND MAINTENANCE ACTIVITIES

Operation activities depend mainly on the type of infrastructure or service. Not all infrastructure requires specific operation activities for it to be used. Roads, for instance, can be used by users without any specific operation activities, whilst waste collection will require continuous operation activities in the form of waste collection from households or collection points and its removal to refuse dumps or larger collection points. In some cases specific operation activities are introduced to ensure the proper use of the infrastructure (e.g. controlling the size and weight of vehicles using a road) or the collection of user fees (e.g. collection of household fees for waste collection or tolls on roads).

Maintenance, on the other hand, is required for all types of infrastructure, irrespective of its purpose. Maintenance is essential to achieve optimum service from the infrastructure created for a sustained period of time. The purpose of maintenance is to sustain the benefits of the created infrastructure by:

- Prolonging the life of the infrastructure and reducing the rate of deterioration, thus safeguarding the investments made.
- Lowering the operating costs and maintaining high service levels.
- Ensuring a reliable service provision by keeping the infrastructure in continuous operation.

Maintenance of infrastructure can generally be divided into three main categories:

**1. Routine maintenance** is aimed at preventing damage from occurring and executing minor repairs targeted at avoiding further and more serious damage. This maintenance type is often carried out throughout the year, either on a continuous basis or at frequent intervals. The required work inputs are limited and simple in nature, generally requiring only unskilled labour and basic handtools, with little need for skilled labour, significant material inputs, equipment or specialised services. Examples include the cleaning of drains and culverts and minor repairs to leaks in roofs or water pipes.

**2. Periodic maintenance** consists of more extensive overhauls and repairs of infrastructure after a number of years. The required work inputs are more substantial and tend to require more skilled personnel to design and implement as well as considerable material inputs, resulting in higher costs. Examples include the regravelling of roads and the replacement of culverts or roofs.

**3. Emergency maintenance** is aimed at repairing damage to infrastructure resulting from unforeseen and often extreme circumstances such as floods, earthquakes, and storms, returning the infrastructure to a condition that allows its basic operation. This maintenance type cannot be planned for, but should nevertheless be budgeted for. The work requirements will depend on the amount and type of damage, and may be carried out by unskilled labour using basic handtools, but can also involve the need for skilled labour and significant material and equipment inputs. Examples are the repair of washed away bridges or of cracked walls.

## FINANCING OPERATION AND MAINTENANCE

The financing of operation and maintenance activities will largely depend on the ownership of the infrastructure involved. Where the infrastructure is owned by the municipal authorities or private institutions (e.g. water or electricity companies), these will be seen to be responsible for the overall operation and maintenance and its funding, whilst community ownership will generally signify that the community will be responsible for this. But even where the ownership is clear, the available funding levels may signify that the responsible partner is not able to fully cover the operation and maintenance needs and that the involvement of other partners is required. For instance, where municipal maintenance budgets are insufficient to serve all needs, a partnership with the community may be required in the form of a contribution to covering the foreseen costs.

The budget required for the proper operation and maintenance of the infrastructure created or improved, including the different types of maintenance, should be estimated in order to determine whether available funding is sufficient. Where this is insufficient, other funding sources need to be identified or the original funding source improved.

The costs of operation and maintenance may be covered by the collection of users' fees or from more general budgets or fund collection activities. Examples of the former are the collection of fees from households for waste collection services and the payment of electricity or water bills by the respective users, but also the collection of fees from more commercially oriented infrastructure such as markets (stall fees). Although users' fees should be kept low to ensure the poor also have access to the services provided, they should be sufficient to cover the foreseen operation and maintenance costs and thus allow for a continued and sustained service. The collection of these users' fees can be done either by the municipal authorities or the community, or even by a private sector enterprise responsible for the operation and maintenance.

Users' fees are not always appropriate or desirable, however, as there is not always such a clear relationship between the individual user and the infrastructure concerned. Especially for infrastructure of a more "open" and non-commercial nature, the setting and collection of users' fees will be more complicated or economically unprofitable (for instance the use of community buildings for public meetings or the application of tolls in roads with little traffic). For these types of infrastructure, other more general budgets or fund collection activities may be more suitable. For the maintenance of schools or municipal roads, for instance, the municipality will generally have a maintenance budget that is financed from municipal taxes or transfers from national budgets. Where this is insufficient or where community-owned infrastructure is concerned, the community may opt for other means of collecting funds, for instance by setting fixed cash contributions from each household or by arranging fund raising activities such as raffles or festivals.

Where insufficient funds can be raised, "voluntary" contributions may also be used, which generally take the form of non-paid labour contributions. Where such "voluntary" contributions are used, it is important to ensure that the contributions and the burden of work are equally and democratically shared among the beneficiaries of the infrastructure or the community as a whole, avoiding that the poor end up contributing more than the average because they have a greater need for the infrastructure (less alternative options) or because they have more time available (greater levels of under or unemployment). An option is to have the richer households provide cash contributions, which can then be used to purchase the required material inputs and specialised services as well as pay for any additional labour required. Voluntary contributions, especially labour contributions, are difficult to manage, however, and ensuring their availability at the right moment (when the maintenance is required) and in sufficient amounts to complete the work required, can be very complicated

(e.g. in seasons of high labour demand). Cash contributions are therefore preferable, and can be used to contract the required labour<sup>27</sup>.

The timely and regular execution of operation and maintenance activities requires securing sufficient funding in advance, before the activities are required and become an urgent issue. Especially maintenance activities should be carried out at an early stage of deterioration, thus limiting the extent of the damages (as well as the costs of the required repairs and the impact on the quality, reliability and level of service). Wherever feasible, regular budgets or fixed contributions in cash are therefore preferable to unpredictable voluntary contributions, especially those made in kind.

## MANAGEMENT OF OPERATION AND MAINTENANCE

The responsibility for the management of operation and maintenance activities, including the planning of these activities, the necessary procurement and contracting for its implementation, as well as the supervision and monitoring of the work, is closely linked to the funding source. The partner responsible for funding the operation and maintenance will generally also be responsible for the management. Whoever is ultimately responsible for the management of operation and maintenance, it makes sense for the community to be involved, even if this involvement is only limited to informing the responsible partner of identified needs for operation and maintenance.

The partner responsible for the management of operation and maintenance should be sufficiently responsive and capable of taking action when required, as opposed to a response when facilities are already no longer able to provide the required service. In some cases, therefore, it may make sense to transfer the responsibility for (part of) the management to another partner (possibly together with the related financing). This may involve the transfer of the management for daily operation and the simpler forms of maintenance to the community, for instance making the community responsible for routine maintenance and leaving the responsibility for periodic maintenance with the municipality. It may be clear that the opposite is also possible, whereby part of the financial and management responsibility for community-owned infrastructure is transferred from the community to the municipality, especially where specialised and costly inputs are required that the community is not able to provide. It must be noted here that the transfer of management responsibilities to the community is not the same as the contracting of the community to carry out certain operation and management activities. The former implies that the community will be responsible for the planning, procurement, contracting, supervision and monitoring, and not just the implementation as is the case with the latter option.

Management of the operation and maintenance of infrastructure requires:

- Preparation of a list of required operation and maintenance activities
- Preparation of a plan and budget for the different operation and maintenance activities
- Collection of the funds required for the implementation of the plan (users' fees, regular budgets, fund raising activities, community contributions, etc.)
- Regular inspection of the infrastructure regarding its condition and proper operation
- Procurement of goods and materials and contracting of individuals or contractors for the implementation of the operation and maintenance activities
- Inspection of completed activities
- Payment for the completed activities

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<sup>27</sup> To ensure the ability of poorer households to provide cash contributions, their employment in the implementation of the operation and maintenance activities can be promoted, thus allowing them to earn sufficient income to cover the required contribution and forming an alternative to a voluntary non-paid labour contribution.

## **IMPLEMENTING OPERATION AND MAINTENANCE**

The implementation of operation and maintenance activities is very similar to the implementation of the community infrastructure development project. The actual implementation may require procurement of materials, tools and equipment, as well as the contracting of unskilled and skilled labour and possibly specialised services. Depending on the funding and management arrangements, the responsibility for the procurement and contracting required for the implementation may lie with the municipal authorities, a private sector institution or the community itself.

Depending on the complexity of the operation and maintenance activities, the implementation of these activities may be carried out directly by hiring local labour and procuring the required materials, through the contracting of a community group, or through the contracting of small- or large scale contractors. The choice of approach is very dependant on the nature and amount of operation and maintenance activities required.

The involvement of (groups of) community members or small-scale contractors from the community makes a lot of sense, as these have already been involved in the implementation of the community infrastructure development project, and have so acquired the skills and experience and are familiar with the construction techniques generally required for implementing the operation and maintenance activities. Most operation and maintenance activities are not technically demanding, with the real challenge lying with the management and funding.

For regular or continuous operation and maintenance activities it can make sense to give a longer term contract to a community group or small-scale contractor which is then responsible for managing the timely implementation of activities. For less frequent activities, community labour and specialised services can be contracted on a need basis.

## **OPERATION AND MAINTENANCE ARRANGEMENTS**

Depending on the technical complexity of the different operation and maintenance activities and the financial, management and implementation capabilities of the different partners, different arrangements may be put in place for operation and maintenance of the infrastructure created or improved under the community infrastructure development project. The ownership of the infrastructure, the source of funding and the management capacity all play a role in determining the best approach for reliable operation and maintenance.

It is recommended to directly involve the communities in the management of these activities as much as possible, especially where the activities are not too complex and the capabilities of the community and especially the CBO are found to be sufficient. Depending on the required funding levels and available funding sources and budgets, the funding of these activities may be transferred to the CBO or the CBO may be made responsible for collecting the required funding.

Irrespective of the funding and management arrangements decided upon, the involvement of the community members and the CBO in the implementation of these operation and maintenance activities is strongly recommended. Their involvement in the development of the concerned infrastructure will mean they have obtained the skills and experience necessary for its operation and maintenance, and that generally tools are retained in the community that can be used for the maintenance activities. Also, their direct benefit from the infrastructure concerned will mean that they have a vested interest in the proper operation and maintenance, more so than a private company or the municipality itself, generally resulting in better performance.

The arrangements for operation and maintenance should be discussed with the community at an early stage, and should be formalised through a memorandum of understanding. For

more complex projects requiring considerable operation and maintenance, it is recommended to already do this during the project preparation, especially since the design options may be influenced by the required operation and maintenance activities (e.g. a gravel road will require more maintenance than a black-topped road, but at the same time the maintenance of a gravel road can be executed more easily by the community itself). In any case, operation and maintenance arrangements should be discussed and agreed upon, including the formalisation of the agreement, before the end of project implementation. Any responsibilities or role for other partners than the community (municipal authorities, private sector institutions, etc.) should also be stipulated in the agreement.

Especially the funding of the operation and maintenance activities should be discussed at an early stage, whereby the size of the required budget should be known. The possible sources of funding should be discussed, both from municipal authorities and private sector institutions (where these are involved), as well as from the communities themselves (users' fees, community contributions, fund raising activities, etc.). Ways of ensuring the timely collection of sufficient funds should be discussed and an agreement reached, whereby all partners foreseen to contribute to the funding should form part of the agreement.

Training in the management and implementation of operation and maintenance activities may be required, and should be included as part of the overall capacity building strategy of the project. Participation in construction alone is insufficient to ensure successful operation and maintenance of the created assets.

Specific issues for different types of infrastructure to be taken into account in determining the most suitable operation and maintenance arrangements, including funding, management and implementation arrangements, are presented in **Annex 11**.





# ANNEXES



## ANNEX 1 PILOT PROJECTS IN NEPAL

Over the course of 2009, four pilot projects were carried out by the ILO. These pilot projects were carried out in Ward 14 of Janakpur municipality in Dhanusha district (Terai). In this ward, three toles were identified (Rajaul, Mujelia and Sohani), in each of which pilot projects were carried out. Mujelia tole was divided into two sub-toles, as there was a large difference between the main urban centre of the tole and the community further away from the highway, both in terms of caste and background, but also in terms of the problems they faced. The general characteristics of the four pilot projects are described on the next page.



Figure 1: Location of Dhanusha district

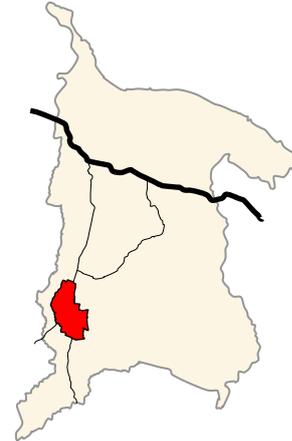


Figure 2: Location of Janakpur municipality

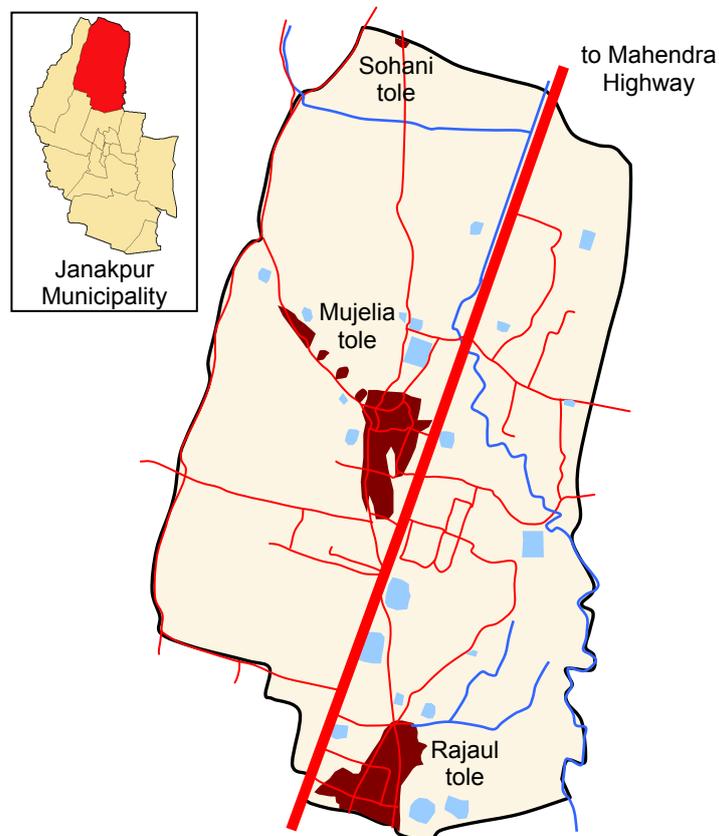


Figure 3: Ward 14 of Janakpur Municipality

**RAJAUL**

Rajaul is the tole in Ward 14 nearest to the centre of Janakpur municipality. In discussions with the community, drainage and urban access were said to be the main problem faced, especially in two areas of the tole. It was therefore decided to construct lined drains along the urban access roads for the disposal of sullage and rain water, and to improve the roads by providing them with a gravel layer.

Project details:	Construction of 500 m lined side drains (brick and concrete) Placement of 4 new culverts Construction of 9 pairs of headwalls for culverts Formation and gravelling of 473 m of roads (3 m wide)
Project cost:	NPR 1,289,082
Estimated employment:	977 Workdays unskilled labour 195 workdays skilled labour

**MUJELIA-1**

Mujelia-1 is the urban part of Mujelia tole next to the main highway. Similarly to Rajaul, their main problem was also drainage. However, because most of the urban roads already had brick paving, the proposed project limited itself to the construction of lined drains, with a small section of road improvement where the height of the road needed to be increased.

Project details:	Construction of 590 m lined side drains (brick and concrete) Placement of 2 new culverts Construction of 9 pairs of headwalls for culverts Increasing the height of a 50 m section of road
Project cost:	NPR 1,283,368
Estimated employment:	882 Workdays unskilled labour 248 workdays skilled labour

**MUJELIA-2**

Mujelia-2 is the more rural part of Mujelia tole further away from the main highway. This tole is highly segregated, but after some discussions it was agreed that the priority common problem to all subgroups was the poor condition of the access road. It was therefore decided to improve this road by creating adequate drainage (especially in the built up areas) and providing a gravel layer.

Project details:	Formation and gravelling of 570 m of roads (3 m wide) Placement of 3 new culverts Excavation of 714 m of earthen side drains (this was later excluded from the project as it was carried out with help from the municipality)
Project cost:	NPR 359,675
Estimated employment:	510 Workdays unskilled labour

**SOHANI**

Sohani is a small tole on the outskirts of Janakpur municipality, consisting wholly of Dalit caste. They were very clear in their priority being the construction of a community building to be used for social events and as a library to assist in improving the education of the community (a foundation already existed but had to be reinforced).

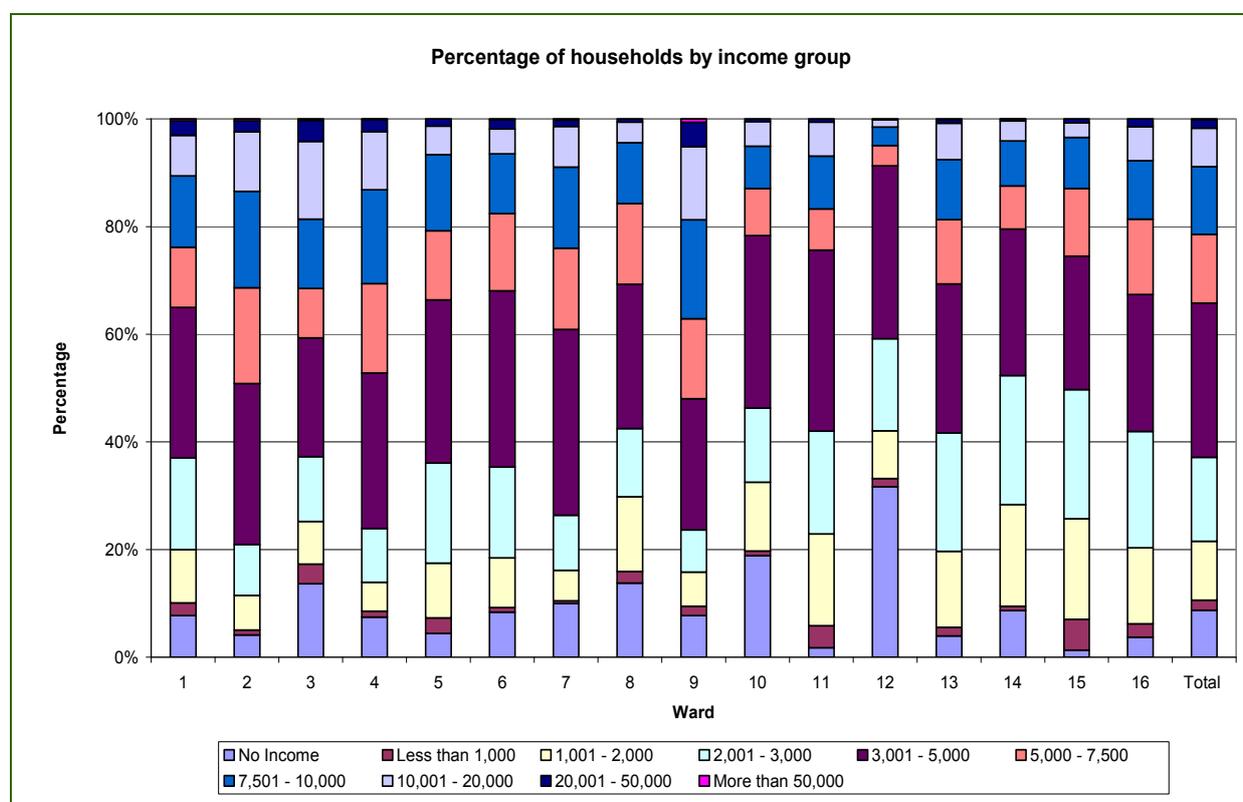
Project details:	Construction of a single-storey community building (7.4 x 5.6 m)
Project cost:	NPR 509,602
Estimated employment:	214 Workdays unskilled labour 148 workdays skilled labour

## ANNEX 2 POVERTY DATA OF JANAKPUR MUNICIPALITY

The following poverty data has been compiled based on data from the Janakpur Poverty Profile prepared by Janakpur Municipality in 2005.

Ward	No Income	< 1,000	< 2,000	< 3,000	< 5,000	< 7,500	< 10,000	< 20,000	< 50,000	> 50,000	Total
1	7.7	10.1	20.0	37.1	65.0	76.2	89.4	97.0	99.7	0.3	100.0
2	4.1	5.0	11.5	20.9	50.8	68.6	86.5	97.6	99.7	0.4	100.0
3	13.7	17.4	25.3	37.4	59.5	68.7	81.6	96.0	99.9	0.3	100.0
4	7.5	8.6	13.9	23.9	52.8	69.4	86.8	97.6	99.9	0.1	100.0
5	4.4	7.3	17.5	36.1	66.4	79.2	93.4	98.7	100.0	-	100.0
6	8.4	9.3	18.5	35.4	68.2	82.5	93.6	98.2	99.9	0.2	100.0
7	10.0	10.5	16.2	26.5	61.0	76.1	91.2	98.7	99.9	0.2	100.0
8	13.8	16.0	29.9	42.6	69.4	84.4	95.7	99.5	100.0	-	100.0
9	7.7	9.4	15.8	23.6	48.0	62.8	81.2	94.8	99.3	0.6	100.0
10	18.9	19.8	32.6	46.4	78.4	87.1	95.0	99.6	100.0	-	100.0
11	1.8	5.9	22.9	42.0	75.6	83.2	93.0	99.3	99.9	-	100.0
12	31.5	33.0	41.8	58.8	90.8	94.5	97.9	99.3	99.3	0.2	100.0
13	3.9	5.5	19.6	41.6	69.3	81.2	92.3	99.1	99.8	0.1	100.0
14	8.7	9.5	28.4	52.4	79.6	87.6	96.0	99.7	100.0	0.1	100.0
15	1.3	7.0	25.7	49.7	74.5	87.1	96.6	99.3	100.0	-	100.0
16	3.7	6.2	20.3	41.9	67.3	81.3	92.2	98.5	100.0	-	100.0
<b>Total</b>	<b>8.7</b>	<b>10.5</b>	<b>21.5</b>	<b>37.1</b>	<b>65.7</b>	<b>78.5</b>	<b>91.1</b>	<b>98.2</b>	<b>99.8</b>	<b>0.2</b>	<b>100.0</b>

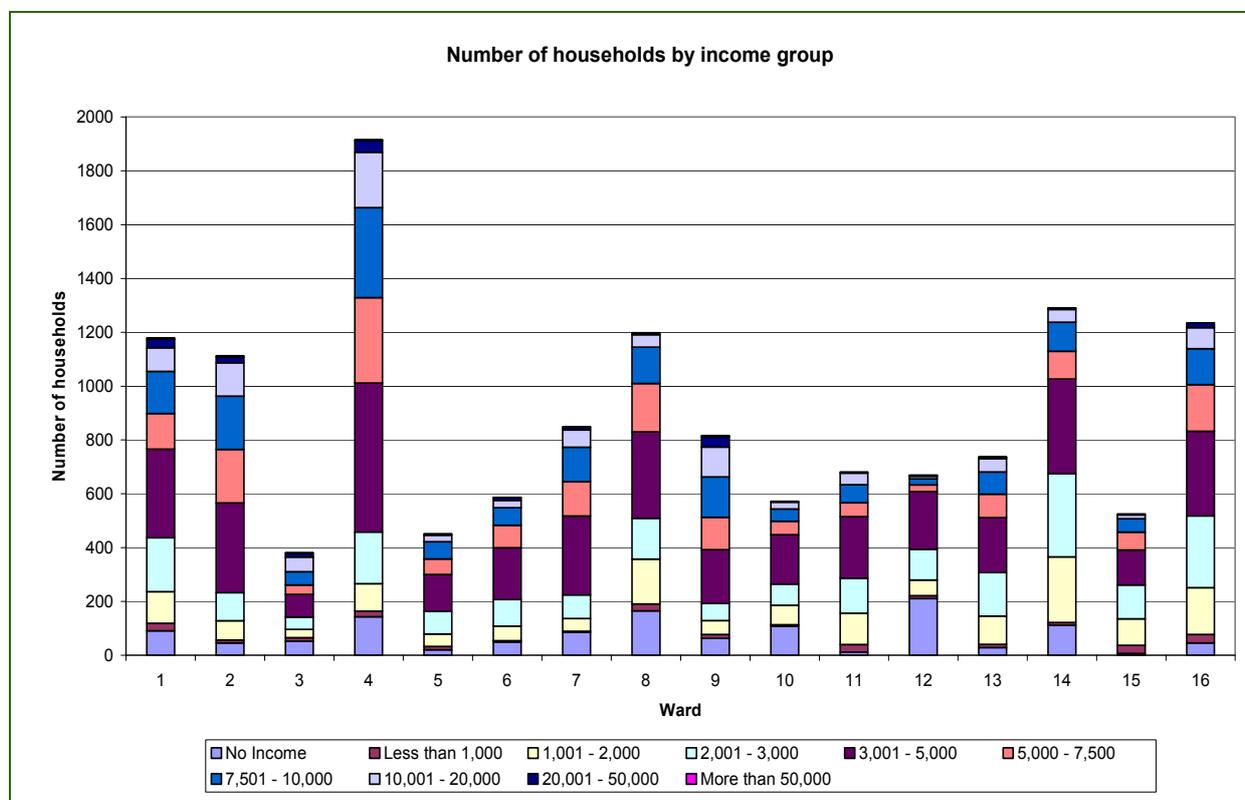
Percentage of households by income group (Data source: Janakpur Poverty Profile)



Percentage of households by income group (Data source: Janakpur Poverty Profile)

Ward	No Income	< 1,000	< 2,000	< 3,000	< 5,000	< 7,500	< 10,000	< 20,000	< 50,000	> 50,000	Total
1	91	119	236	437	766	898	1,054	1,143	1,175	4	1,179
2	46	56	128	233	566	764	963	1,086	1,109	4	1,113
3	52	66	96	142	226	261	310	365	380	1	381
4	143	164	266	458	1,011	1,329	1,663	1,869	1,913	2	1,915
5	20	33	79	163	300	358	422	446	452		452
6	49	54	108	207	399	483	548	575	585	1	586
7	85	89	137	224	517	645	773	837	847	2	849
8	165	191	357	509	830	1,010	1,145	1,191	1,198		1,198
9	63	77	129	193	392	513	663	774	811	5	816
10	108	113	186	265	448	498	543	569	572		572
11	12	40	156	286	515	567	634	677	681		681
12	211	221	280	394	608	633	656	665	668	1	669
13	29	41	145	307	511	599	681	731	736	1	737
14	112	122	366	675	1,026	1,129	1,237	1,285	1,289	1	1,290
15	7	37	135	261	391	457	507	521	525		525
16	46	77	251	518	832	1,005	1,139	1,217	1,235		1,235
<b>Total</b>	<b>1,239</b>	<b>1,500</b>	<b>3,055</b>	<b>5,272</b>	<b>9,338</b>	<b>11,149</b>	<b>12,938</b>	<b>13,951</b>	<b>14,176</b>	<b>22</b>	<b>14,198</b>

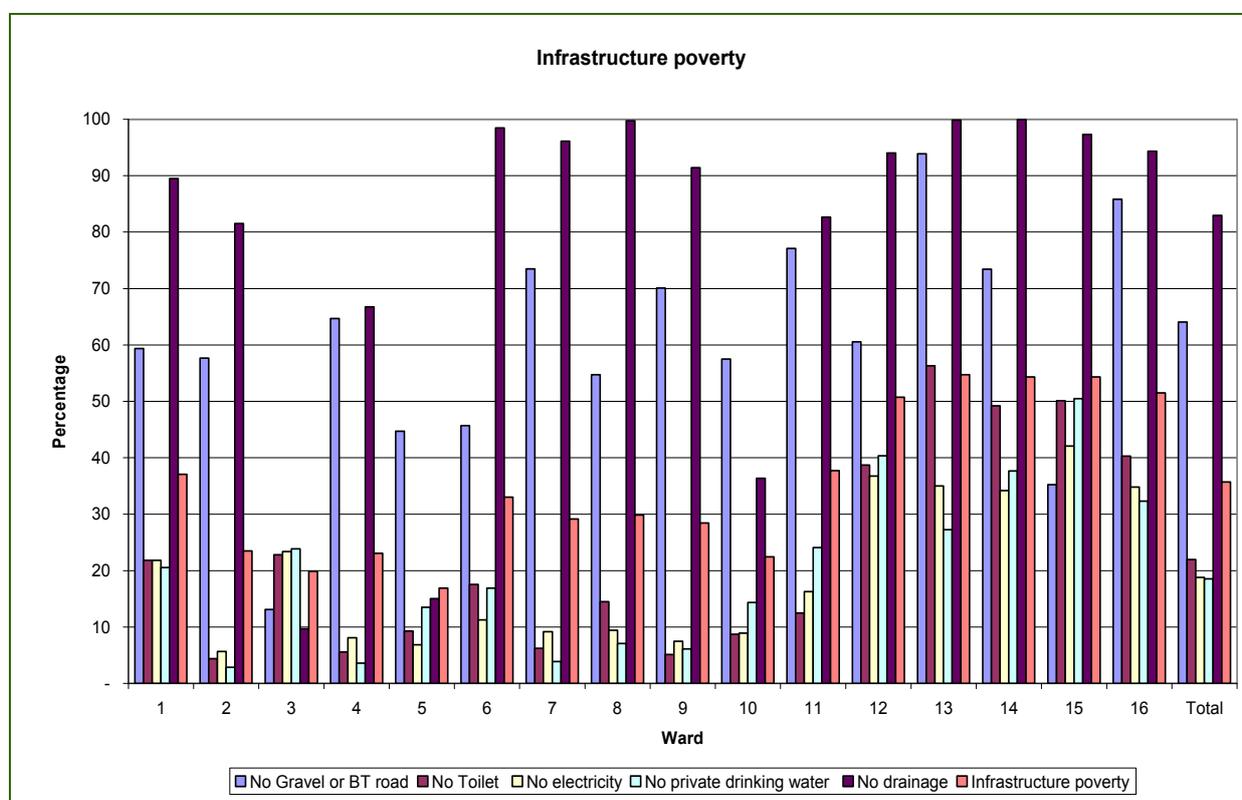
Number of households by income group (Data source: Janakpur Poverty Profile)



Number of households by income group (Data source: Janakpur Poverty Profile)

Ward	No Gravel or BT road	No Toilet	No electricity	No private drinking water	No drainage	Infrastructure poverty
1	59.4	21.8	21.8	20.5	89.5	37.1
2	57.7	4.4	5.7	2.9	81.5	23.5
3	13.1	22.8	23.4	23.9	9.7	19.9
4	64.7	5.6	8.1	3.6	66.7	23.1
5	44.7	9.3	6.9	13.5	15.0	16.9
6	45.7	17.6	11.3	16.9	98.5	33.0
7	73.5	6.2	9.2	3.9	96.1	29.2
8	54.8	14.5	9.4	7.1	99.8	29.9
9	70.1	5.2	7.5	6.1	91.4	28.5
10	57.5	8.7	8.9	14.3	36.4	22.5
11	77.1	12.5	16.3	24.1	82.7	37.7
12	60.5	38.7	36.8	40.4	94.0	50.7
13	93.9	56.3	35.0	27.3	99.9	54.7
14	73.4	49.2	34.2	37.7	99.9	54.3
15	35.2	50.1	42.1	50.5	97.3	54.3
16	85.8	40.3	34.8	32.3	94.3	51.5
<b>Total</b>	<b>64.1</b>	<b>22.0</b>	<b>18.8</b>	<b>18.5</b>	<b>83.0</b>	<b>35.7</b>
Weight	0.15	0.2	0.1	0.4	0.15	1.0

Percentage of households without access to basic services (Data source: Janakpur Poverty Profile)



Percentage of households without access to basic services (Data source: Janakpur Poverty Profile)

## **ANNEX 3 DESIGN GUIDELINES**

This annex aims to provide some basic guidelines for the more common types of interventions in community infrastructure development in urban areas, focusing on the potential for community participation and employment generation in the implementation.

### **Roads, streets and access paths**

The purpose of this type of infrastructure is to provide access to housing, public buildings, markets and workplaces as well as public facilities such as schools, clinics, wells, public toilets, etc. With the installation of proper drainage along the roads and paths, these interventions also contribute to improving the general drainage and cleaning up muddy areas and pools of stagnant water (and the related health hazards).

The width should reflect the type of access needed, and oversizing should be avoided as this will result in overly costly interventions: wider roads for trucks or cars, narrow roads or paths for motorcycles, bicycles, handcarts, pedestrians. Different surfacing options exist with differing cost and maintenance implications. Gravel surfaces often provide cost-effective solutions and are easy to implement by communities, with high employment potential. Stone or block paving is more costly, but has similar potential for community involvement and an employment creation and requires less maintenance. Concrete and bitumen-based surfaces are the most costly and require certain technical expertise and equipment, limiting community participation and employment creation. Low lying sections should be raised if this does not adversely affect the surrounding houses. Municipal plans and standards should be reviewed to check the right-of-way. Applied standards and designs should avoid the demolition of houses and buildings as much as possible.

### **Drainage**

The purpose of the infrastructure is to drain water (and possibly sullage) away from houses, buildings, access roads and paths to avoid or reduce as much as possible any flooding and/or erosion, to remove standing water that can lead to disease and safely discharge water without causing damage to neighbouring areas or water courses.

The drains should never be higher than the surrounding area, especially surrounding houses, to avoid water draining away from the drain (and into the houses) instead of into the drain. The drains should have sufficient and continuous downward gradient to avoid excessive silting and debris build up and areas with standing water. Where the gradient is steeper, lined drains should be used or other forms of avoiding erosion. Drains should be made as straight as possible. In the placement of the drains, planned road widths should be taken into account. Where space is very limited, drains on one side only or the use of surfaced roads as drains may be opted for (with a dipped centrepiece).

The excavation and lining of drains provides a high employment potential. For the lining of drains, different materials can be used, including stone lining, bricks, concrete blocks, concrete slabs and poured concrete. Deep drains should be covered to avoid accidents and injuries. Pipes should be used where covered drains are too costly and for home and business access to the drain. Drain outlets should be protected from erosion by gabion baskets or culvert walls and aprons (masonry or concrete). Debris catchers should be placed before underground pipes to avoid clogging up.

### **Drinking water**

The purpose of this infrastructure is to provide safe potable drinking water to the community at an affordable price. Options include wells or boreholes, water kiosks, and piped systems (standpipes or household connections). Household connections generally require 100-150 litres per person per day, standpipes may be based on 40 litres per person per day. Standpipes should not be more than 200 m apart and serve less than 125 people. Water

sources should be assessed to see if they are safe and if they provide sufficient quantity of water. Proper drainage of spilt water should be ensured, including an apron around public water sources to avoid unhygienic situations. Pipes should be placed away from drains to avoid contamination in case of leaks and be placed deep enough to avoid damage. Excavation and laying of pipes provides a high employment potential. Some activities may require some technical expertise.

### **Sanitation**

The main purpose of the infrastructure is to provide hygienic and culturally acceptable toilet facilities and safe disposal of human excreta and to reduce health hazards associated with the transmission of disease through contact with excreta. Where linkage to an existing sewerage system is not possible, options include public and household pit latrines. These may be pour flush where water is used for cleaning and where sufficient water is available, or simple drop latrines. Latrines with two pits allow a full pit to be sealed off for a period before emptying, making removal of sludge less hazardous to health. Pour flush latrines allow the pit(s) to be placed off to one side. In areas prone to flooding, the whole pit may have to be raised to avoid pollution. Latrines should be placed at least 15 m away from the nearest water source.

Pit linings can be made from concrete rings, brickwork, blocks or stone, cast in-situ concrete or ferro-cement. The pit slab can be either reinforced or cast in dome shape to take the weight of a large adult. The employment potential is very high for all excavation work, whereas the construction of latrines can create significant employment for local skilled workers. Indirect employment generation can be increased by using locally fabricated building materials.

### **Solid waste management**

The purpose of solid waste management is to improve the living and working environment in the community and to reduce health risks from disease, but also to avoid blockage of drainage systems. At community level solid waste management is generally limited to waste collection from households and transportation to a secondary collection point (from where it is collected by municipal authority or their contractor). The sorting of waste into recyclable waste, organic material and waste to be disposed of may offer an additional source of employment and incomes.

The infrastructure requirements are generally limited to the construction of a secondary collection point, generally a walled off area with an opening on one side that can easily be constructed by community members. However, solid waste collection also provides ample potential for long term employment creation in the collection and transport of household waste to these secondary collection points. This is generally carried out by community groups or small local enterprises with handcarts or other transport, whereby users' fees generally provide the required funding for this service.

### **Community and public buildings**

The purpose of these buildings is to serve as meeting place for social events, savings groups, community meetings, shelter during floods or other natural disasters, but also includes schools and clinics. These should be constructed on land not prone to flooding or in danger of landslides, accessible to the whole community, and on public or community owned land. Existing standards (for instance for schools and clinics) and community needs should be taken into account in the design. The direct employment potential in building construction is moderate, but indirect employment generation may be much greater based on the materials to be used. Possible materials include poured (reinforced) concrete, concrete blocks, clay bricks, sun-dried mud bricks, stone masonry, timber (and clay) and many variations of these. The use of locally common building materials will ensure experience in their application by local skilled labour. It is recommended to include sanitation facilities, electricity connections and possibly water supply.

# ANNEX 4 EXAMPLE BILL OF QUANTITIES

No	Item	QTY	Unit	Particulars	Unit	Persons/ day	No. of days	QTY	Unit cost	Amount	Sub total	Total
<b>1 Placement of culverts 3m x 45cm</b>												
		4	units	LABOUR COST								
				Skilled labour	Workdays	1.00	0.50	0.50	400.00	200.00		
				Unskilled labour	Workdays	6.00	0.50	3.00	250.00	750.00	950.00	
				MATERIAL COST								
				Sand	m <sup>3</sup>			0.12	850.00	102.00		
				Cement	kg			24.00	14.00	336.00		
				Hume pipe 45cm x 3m	unit			4.00	3,120.00	12,480.00	12,918.00	13,868.00
<b>2 Construction of headwalls</b>												
		9x2	units	LABOUR COST								
				Skilled labour	Workdays	1.00	5.00	5.00	400.00	2,000.00		
				Unskilled labour	Workdays	3.00	6.00	18.00	250.00	4,500.00	6,500.00	
				MATERIAL COST								
				Sand	m <sup>3</sup>			1.91	850.00	1,623.50		
				Bricks	unit			2,081.00	8.20	17,064.20		
				Cement	kg			473.59	14.00	6,630.26		
				Aggregate	m <sup>3</sup>			0.36	866.67	312.00	25,629.96	32,129.96
<b>3 Construction of lined drains</b>												
		500	m	LABOUR COST								
				Skilled labour	Workdays	4.00	25.00	100.00	400.00	-		
				Unskilled labour	Workdays	2.00	9.00	18.00	400.00	7,200.00	25,000.00	
		500	m	LABOUR COST								
				Skilled labour	Workdays	4.00	9.00	36.00	250.00	9,000.00	9,000.00	
				Unskilled labour	Workdays	3.00	4.00	12.00	400.00	4,800.00	4,800.00	
		500	m	LABOUR COST								
				Skilled labour	Workdays	21.00	4.00	84.00	250.00	21,000.00	21,000.00	
				Unskilled labour	Workdays	3.00	28.00	84.00	400.00	33,600.00	33,600.00	
		500	m	LABOUR COST								
				Skilled labour	Workdays	12.00	28.00	336.00	250.00	84,000.00	84,000.00	
				Unskilled labour	Workdays	3.00	25.00	75.00	400.00	30,000.00	30,000.00	
		500	m	LABOUR COST								
				Skilled labour	Workdays	3.00	25.00	75.00	250.00	18,750.00	233,350.00	
				MATERIAL COST								
				Sand	m <sup>3</sup>			24.14	850.00	20,519.00		
				Second class bricks	unit			14,280.00	5.50	78,540.00		
				Sand	m <sup>3</sup>			11.99	850.00	10,191.50		
				Cement	kg			5,610.00	14.00	78,540.00		
				Aggregate	m <sup>3</sup>			22.70	866.67	19,673.33		
				Bricks	unit			45,315.00	8.20	371,583.00		
				Cement	kg			8,550.00	14.00	119,700.00		
				Sand	m <sup>3</sup>			29.93	850.00	25,440.50		
				Sand	m <sup>3</sup>			9.34	850.00	7,939.00		
				Cement	kg			2,323.20	14.00	32,524.80	764,651.13	998,001.13
<b>4 Levelling and gravelling of roads</b>												
		473	m	LABOUR COST								
				Skilled labour	Workdays							
				Unskilled labour	Workdays	13.00	25.00	325.00	250.00	81,250.00	81,250.00	
				MATERIAL COST								
				Gravel	m <sup>3</sup>			156.00	866.67	135,200.00	135,200.00	216,450.00
				Total material costs							938,399.09	
				Total labour costs							322,060.00	
				<b>TOTAL DIRECT COSTS</b>							<b>1,260,449.09</b>	
<b>5 Additional costs</b>												
				5.1 Foreman (skilled labour)	Workdays				400.00	-		
				5.2 Tools (3% of labour costs)	Lumpsum					9,007.35		
				5.3 First aid kit						2,000.00		
				5.4 Insurance fund/contingency (1.5%)						17,625.56	28,632.91	28,632.91
				<b>TOTAL PROJECT COSTS</b>							<b>1,289,082</b>	

## ANNEX 5 EXAMPLE CONTRACT DOCUMENT

### CONTRACT

*for the construction of lined drains and gravelling of urban roads in Rajaul tole*

This document describes the required intervention to be carried out for the improvement of drainage and access in Rajaul tole, Janakpur municipality in Dhanusha district. These improvements will be carried out by the community of Rajaul tole under a community contract between the Community-Based Organisation **Shree Rajaul Samaj Sewa Samiti** (CBO) representing the community on the one side, and the **International Labour Organisation** (ILO) on the other side. The CBO will be responsible for managing all funds, purchasing required goods and materials, contracting required labour (skilled and unskilled) and managing implementation, with technical assistance to be provided by the ILO. As such, this document describes the rights and responsibilities of the CBO and the community it represents.

#### TASKS

In line with the accepted design proposal, the CBO will be responsible for carrying out the following activities:

1. Construction of 500 m (five hundred metres) of lined drains using concrete and brick masonry according to the design provided in **Annex C** and the inputs as mentioned in the Bill of Quantities provided in **Annex B** of these Terms of Reference. The location of the different drain sections to be constructed is provided in the project map in **Annex A**.
2. Placement of four culverts of 3 metres long and 45 cm diameter to provide cross drainage and link the different lined drain sections, complementing the already existing culverts in the area. The location of the culverts is provided in the project map in **Annex A** and the required inputs are given in the Bill of Quantities in **Annex B**.
3. Construction of nine pairs of headwalls for the existing and new culverts using concrete and brick masonry, according to the design provided in **Annex C** and the inputs as defined in the Bill of Quantities in **Annex B**. The location of the different existing and new culverts is provided in the project map in **Annex A**.
4. Proper road (camber) formation and gravelling of 473 m (four hundred and seventy-three metres) of urban roads with a 10 cm thick and 3 m wide layer of gravel. The location of the road sections to be gravelled is provided in the project map in **Annex A** and the required inputs are provided in the Bill of Quantities in **Annex B**.

Apart from these tasks related directly to the execution of the works, the CBO will keep accurate and up-to-date accounts of the work, recording all received payments and other incomes, purchases and other expenditures, and the remaining balance. The CBO will also be required to record all employment created, differentiated by male/female and skilled/unskilled labour. The use of materials in the works will also be recorded in order to allow comparison with the Bill of Quantities and the norms used. A project book will be provided to the CBO for recording all financial transactions, as well as the number of workdays created and the use of materials.

#### FUNDING AND PAYMENTS

The total contract sum for this project is **NPR 1,289,082 (Nepalese Rupees one million two hundred eighty nine thousand eighty two only)**. The funding for this project will be provided by the ILO according to the Bill of Quantities provided in **Annex B**. These funds will be provided in one initial advance payment at the moment of signing the contract, followed by an interim payment against satisfactory progress of work and a final payment against the total amount of work completed and the received receipts. The progress of work will be assessed by an ILO Engineer.

- a. First instalment of NPR 300,230 (three hundred thousand, two hundred and thirty rupees only) upon signing the contract as an advance for the purchase of tools, first aid kit and the initial materials required and the contracting of labour for the initial start-up period.
- b. Second instalment of NPR 790,535 (Nepalese rupees seven hundred ninety thousand five hundred and thirty five only) on certification by the ILO Engineer of the work implementation after expenditure of at least 65% of the first instalment, upon submission of a written request along with expenditure details and work evaluation of the work completed.
- c. Final instalment of NPR 121,197 (Nepalese rupees one hundred twenty one thousand one hundred and ninety seven only) on certification by the ILO Engineer of the final work implementation plus any outstanding expenditure from previous periods upon submission of a written request along with expenditure details and work evaluation of the completion of works.

The payments will be made in favour of “**Shree Rajaul Samaj Sewa Samiti**” maintained at Nepal Rastriya Baniya Bank, Branch office Bhanu Chowk, Janakpur. The proper use of the funding by the CBO will be assessed at the end of the project through a public audit, whereby the CBO will have to present the use of the funds and the results obtained, in comparison with the Workplan and the Bill of Quantities.

For both the payments and the public audit, the CBO is required to keep an adequate and up-to-date bookkeeping of all received payments and other incomes, all purchases and other expenditures and the remaining balance.

### **LABOUR AND EMPLOYMENT**

Through this project an estimated 1,171 workdays of employment will be created, 977 workdays for unskilled labour and 194 workdays for skilled workers. A suitable process for the selection of workers will be developed by the CBO at the beginning of the project in coordination with the ILO, whereby due attention will be given to providing employment to those currently without employment, to women and to Dalit. Other criteria may also be defined. All unskilled and skilled workers will be paid according to the district minimum daily wage rates as defined in the Bill of Quantities in **Annex B**.

### **PROCUREMENT**

The CBO is responsible for the purchase of construction materials, tools and a first aid kit required for the implementation of the works described above. The different materials and the amounts required, as well as the cost per unit are defined in the Bill of Quantities in **Annex B** of these Terms of Reference.

A provision of 3% of the total labour costs has also been included for the purchase of hand tools to be used by the workers in the implementation of the works (see **Annex B**). These funds may be used for the purchase of those tools considered necessary by the CBO, in coordination with the ILO Engineer.

The CBO is also to purchase a first aid kit at the start of the project which is to be kept at the work site and to be used to treat any project-related injuries that may occur.

All purchases require three quotations, after which the goods or materials are purchased from the cheapest bidder. It is hereby important that the quality of the goods or materials is checked, to ensure that an appropriate quality is obtained, thus avoiding the need to replace any faulty goods or materials which may result in higher costs. All purchases must be entered into the project book together with the related invoices, against which reimbursement will later be made by the ILO.

### **INSURANCE / CONTINGENCY FUND**

The budget includes an insurance / contingency fund of 1.5% of the total project cost (see **Annex B**). This fund may be used to reimburse any costs of project-related accidents. Should sufficient funds remain towards the end of the project, this fund may also be used to cover any unforeseen costs or cost increases that come up during the project implementation. This fund may only be used after prior approval by the ILO.

### **TIMING OF ACTIVITIES**

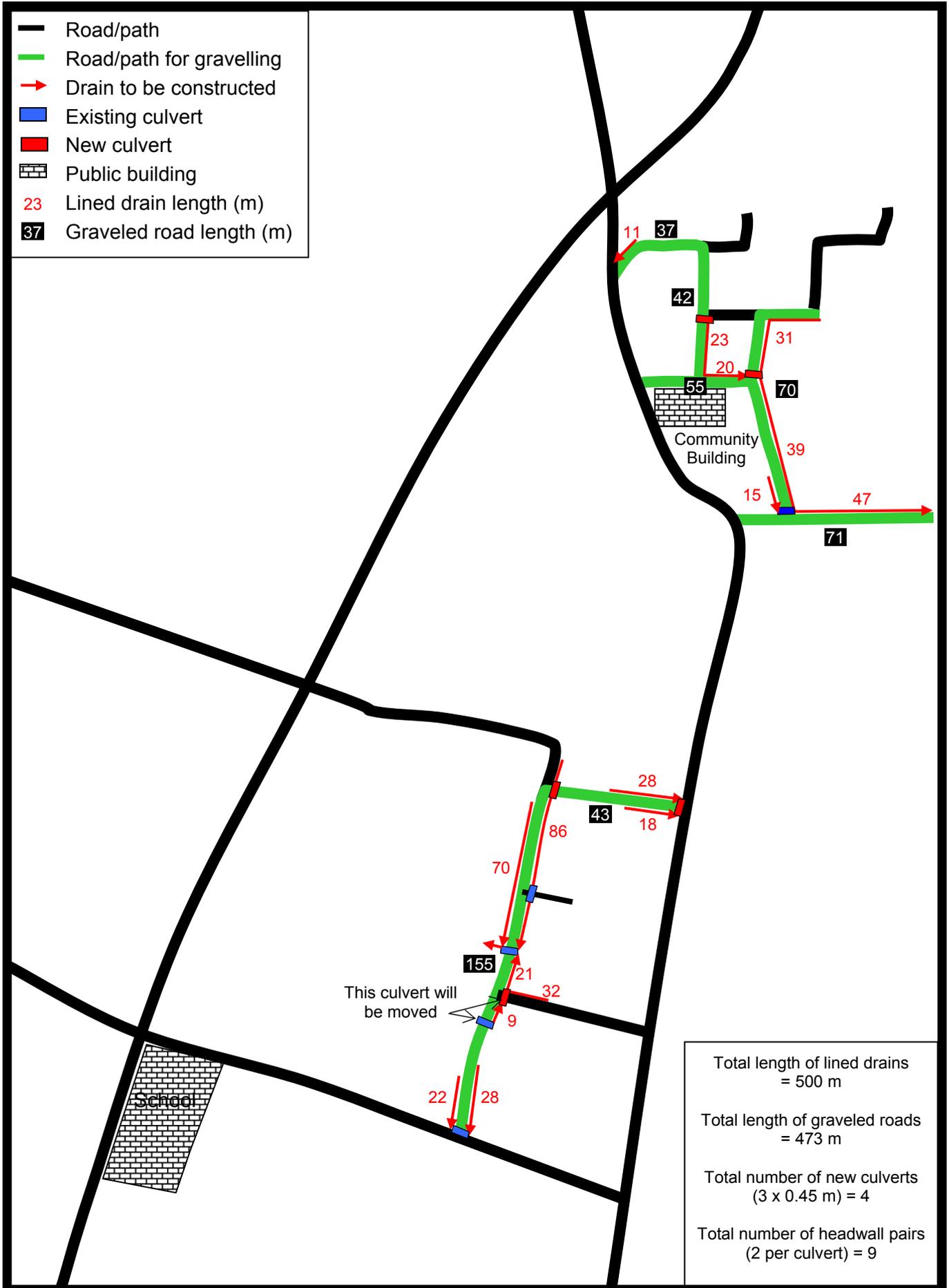
This contract shall start on May 1<sup>st</sup> 2009 and run till December 31<sup>st</sup> 2009. The timing of the different activities involved in the implementation of this project is described in the Workplan which can be found in **Annex D** of these Terms of Reference.

### **ANNEXES**

These Terms of Reference include the following annexes:

- Annex A: Project map
- Annex B: Bill of Quantities
- Annex C: Designs
- Annex D: Workplan

## ANNEX 6 EXAMPLE PROJECT MAP



## ANNEX 7 EXAMPLE WORKPLAN

Activity	Month Half		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec		
	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	
<b>A Arrangements</b>																					
Registration of CBO																					
Processing of contract																					
Signing contract																					
Recruitment of workers																					
<b>P Procurement</b>																					
Tools & first aid kit																					
Materials																					
<b>T Training</b>																					
Project management training																					
On-the-job skills training																					
Maintenance training																					
<b>W Works</b>																					
<b>1. Construction of lined drains</b>																					
1.1 Excavation																					
1.2 Flat brick soling																					
1.3 PCC works																					
1.4 Brick work																					
1.5 Plastering																					
<b>2. Placement of culverts</b>																					
<b>3. Construction of headwalls</b>																					
<b>4. Levelling and gravelling of roads</b>																					
<b>S Supervision, Certifications and Payments</b>																					
Supervision of works by ILO																					
Progress & final works certifications																					
Request for payments																					
Processing of advance & instalment payments																					
<b>R Reporting and Evaluation</b>																					
Public audit																					
Final report CBO																					

 CBO activity
 ILO Dhanusha activity
 ILO Kathmandu activity



## ANNEX 9 EXAMPLE OF A CONTRACT ADDENDUM

### Addendum to the Contract

between

**International Labour Organization (ILO)**

and

**Shree Rajaul Samaj Sewa Samiti**

This addendum is to be considered an integral part of the Contract between the ILO and Shree Rajaul Samaj Sewa Samiti, signed on 29 April 2009. By mutual agreement of both the parties, the following administrative and technical changes have been made to the contract due to delays in the project start-up and related technical considerations:

1. The completion date of the contract will change from September 30th 2009 to December 31st 2009. In line with this change, the Workplan has been revised accordingly and is attached to this addendum as Annex 1.
2. The payment schedule will be changed to include only three payments, combining the second and third payment into one single payment and reducing the final payment to 10% of the total contract amount to facilitate the purchase of construction materials and to avoid further delays in the implementation of the project. The total contract amount does not change.
  - a. First instalment of NPR 300,230 (Nepalese rupees three hundred thousand two hundred thirty only) upon signing the contract as an advance for the purchase of tools, first aid kit and the initial materials required and the contracting of labour for the initial start-up period.
  - b. Second instalment of NPR 790,535 (Nepalese rupees seven hundred ninety thousand five hundred and thirty five only) on certification by the ILO Engineer of the work implementation after expenditure of at least 65% of the first instalment, upon submission of a written request along with expenditure details and work evaluation of the work completed.
  - c. Final instalment of NPR 121,197 (Nepalese rupees one hundred twenty one thousand one hundred and ninety seven only) on certification by the ILO Engineer of the final work implementation plus any outstanding expenditure from previous periods upon submission of a written request along with expenditure details and work evaluation of the completion of works.
3. The contracting of a foreman has been taken out of the project as the ILO is already providing a full-time site supervisor. The costs of this post have been reallocated to the drain construction.
4. In order to enable the advance of works during the rainy season, the design of the lined drains has been changed to include brick soling instead of earth excavation/refilling and sand filling. Due to the higher cost of the brick soling, the length of drain to be constructed has been reduced from 512 m to 500 m. The insurance/contingency fund has been decreased slightly to allow for this length of drains to be constructed. The cut section is indicated in the revised project map, attached as Annex 2 to this addendum.
5. The cost changes related to the technical design changes mentioned in points 3 and 4 are reflected in the revised Bill of Quantities, attached as Annex 3 to this addendum.
6. After completion of the work as described in the Service Contract and this addendum, any remaining project funds may be used to extend the length of lined drains after approval by the ILO.

Other terms and conditions will remain the same as specified in the signed Contract.

For the International Labour Office

For the Contractor

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Director

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Chairperson

Date:

Date:

# ANNEX 10 EXAMPLE MONITORING SPREADSHEET

## WORKPLAN AND PHYSICAL PROGRESS

Updated on 25 September 2009

**RAJAUL**

Contractor: **Shree Rajaul Samaj Sewa Samiti**

Construction of lined drains and gravelling of urban roads

Item	Unit	Quantity	2009												Comple. %	Budget	Skilled labour	Unskilled labour	Weighted completion %				
			May		Jun		Jul		Aug		Sep		Oct							Nov		Dec	
			1 <sup>st</sup>	2 <sup>nd</sup>						1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>										
<b>1- Construction of lined drains</b>																							
1.1- Excavation of drains	m	Plan 500 Actual 183								100	100	150	100	100	50								
1.2- Flat brick soiling	m	Plan 500 Actual 174								70	100	150	100	100	80								
1.3- PCC works	m	Plan 500 Actual 174								50	100	150	100	100	100								
1.4- Brick works	m	Plan 500 Actual 174								174		100	150	100	120	30							
1.5- Plastering	m	Plan 500 Actual 174								174		50	150	100	150	50							
<b>2- Placement of culverts 3m x 45cm</b>																							
2.1- Installation of pipes	no	Plan 4 Actual 0									2	2											
<b>3- Construction of headwalls</b>																							
3.1- Construction of culvert headwalls	no	Plan 9 Actual 0											4	5									
<b>4- Levelling and gravelling of roads</b>																							
4.1- Sub-grade preparation	m	Plan 473 Actual 0												223	250								
4.2- Gravel surfacing	m	Plan 473 Actual 0													223	250							
<b>5- Additional costs</b>																							
5.1 Tools, first aid kit, insurance fund	NPR	Plan 28,633 Actual 0																					
<b>Workdays generated</b>																							
Skilled	wd	Plan 195 Actual 54																	28%				
Unskilled	wd	Plan 977 Actual 231																	24%				
Total contract sum		1,211,962.00																					
Received amount (%)		24.8%																					
Completion (%)		27.1%																					
Total payments received		300,230.00																					
Expected expenditure		328,760.13																					
Actual expenditure		229,788.00																					
Skilled labour		65.77																					
Unskilled labour		221.39																					
Total planned		194.50																					
Actual		54.00																					
Expected		65.77																					
Actual		231.00																					
Expected		221.39																					
Total planned		977.00																					
Actual		231.00																					

## **ANNEX 11 OPERATION AND MAINTENANCE GUIDELINES**

This annex aims to provide some basic guidelines for the operation and maintenance of the more common types of interventions in community infrastructure development in urban areas, focusing on funding mechanisms and the potential for community execution.

### **Roads, streets and access paths**

The most important maintenance activities include the clearing of the drains and culverts/bridges to ensure water is guided safely away from the road. This can be easily carried out by local community members using basic handtools (possibly those left over from the construction phase). Other maintenance activities include the repairs to the road surface (potholes, ruts, erosion) and road structures. In the case of earthen, gravel, stone paved or concrete road surfaces, this can also be carried out by local community members after having received basic training, although certain materials may be required (gravel, stones, cement, sand, aggregate) that may be procured locally or supplied by the municipality. For bitumen-based surfaces, the required materials are not readily available and certain equipment is generally required, making community participation less feasible. For the repair of the road structures, some material inputs will also be required (gabion wire, cement, etc.).

It is recommended to organise community groups or small enterprises responsible for the maintenance on a paid basis rather than voluntary contributions which are difficult to organise and usually not available at the time they are required. Funding may come from municipal budgets, community contributions from each household (preferably in cash) or other fund raising activities (e.g. fairs). Tolls may be applicable in roads with higher traffic levels, but collection costs often preclude sufficient funding from being raised. Employment may be continuous throughout the year (part- or fulltime), focusing on the drainage system before and during the rainy season and on repairs during the dry season.

### **Drainage**

To ensure the proper working of the drainage infrastructure, this has to be regularly cleaned (removing solid waste, cutting vegetation), especially just before and during the rainy season, and repairs carried out on a need basis. This work is extremely suitable to being carried out by community members, especially where these have been involved in the construction phase. The implementation of a solid waste management system will greatly alleviate the maintenance needs of drainage infrastructure.

Maintenance may be organised using community groups or small enterprises on a need basis (generally a few times before and during the rainy season), or by organising labour on an ad-hoc basis. Although voluntary labour contributions are feasible, it is recommended to apply cash contributions and contract the required labour to ensure timely execution of the maintenance.

### **Drinking water**

Water supply will generally require some operational activities aimed at ensuring the proper working of the water systems and collecting the required users' fees. Depending on the type and ownership of the water supply system, this may be carried out by the municipality, the water company, the community or a small local enterprise made responsible for this. In the case of public wells, boreholes or standpipes, the collection of the users' fees may be more complicated and alternative funding mechanisms may need to be evaluated. It is strongly recommended, especially in the case of such public water points, to ensure that a proper funding mechanism is in place and funding is earmarked for maintenance, and that a local enterprise or community group is made responsible for executing this maintenance. Where the municipality is responsible for maintenance but has a budget that is too far stretched, it is recommended to develop alternative funding mechanisms at community level. Although

voluntary labour contributions may be usable to a limited degree, cash contributions will be required for the purchase of the materials required for repairs.

### **Sanitation**

In the case of pit latrines, the maintenance requirements are minimal except for the regular emptying of the pits. Where latrines with two pits are used, closing the full pit for an extended period of time, health hazards related to the handling of excreta are minimised and labour can be used without too much difficulty (even allowing the excreta to be used as manure).

This may be carried out by existing enterprises or new ones set up, whereby sufficient demand should be ensured, with enterprises covering several communities or also being responsible for the maintenance of other infrastructure. The identification of a proper site for placing the removed excreta should also be ensured. Small repairs to the latrines may be carried out by the community on a need basis, or included under the responsibility of the enterprises.

### **Solid waste management**

It is recommended that the solid waste management systems be enterprise-based, whereby funding is collected from users' fees<sup>28</sup>. The enterprises responsible for the collection of the household waste and its transport to secondary collection sites can be made responsible for the collection of the users' fees. It is recommended to ensure that these fees are not too high and that all households are required to contribute, to avoid people dumping their waste along the road in order to avoid having to pay the fees. The collection of waste in public areas should also be incorporated into the activities of these enterprises, the costs of which should be covered by the users' fees. Apart from an impact on the living standards in the community, solid waste management will also have a beneficial effect of road drainage structures and general drainage systems, avoiding their blockage by solid waste.

The users' fees should cover the salaries of the waste collectors, the purchase, repair and replacement costs of tools and equipment (handcarts, hand tools, safety equipment) and a small profit margin for the enterprise. Additional income and employment generation can be achieved by including waste recycling activities<sup>29</sup>. The safety and health of the waste collectors and those responsible for recycling the waste should be ensured, taking account of working hours, loads, traffic accidents, fumes and emissions, noise from machinery, hazardous substances, etc.

### **(Public) buildings**

For public buildings the payment of electricity and water bills should be ensured, as well as the regular maintenance of the building itself (painting woodwork and walls, repairs to doors, windows, roof, etc.). An appropriate funding source has to be identified, either in the form of cash contributions from the community members or through fund raising activities. Renting out the building for private events is also a good source of funding. In the case of schools or clinics, funds for maintenance may be available from the municipality or the responsible authority. Adequate funding should be made available before it is required, however, to ensure timely maintenance. Maintenance is generally carried out once a year or every few years, on a need basis. This may be carried out by contractors or skilled labour from the community.

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<sup>28</sup> See also: "Start your waste collection service", ILO, 2002 ([www.ilo.org/eiip](http://www.ilo.org/eiip)).

<sup>29</sup> A useful publication is "Start Your Waste Recycling Business - Training Package", ILO, October 2007 ([www.ilo.org/eiip](http://www.ilo.org/eiip)).



# COMMUNITY INFRASTRUCTURE DEVELOPMENT IN URBAN AREAS

CREATING JOBS WHILE IMPROVING LOW-INCOME URBAN SETTLEMENTS

Poverty in the world is becoming more and more urbanised, mainly as a result of the general urbanisation of the world's population, both due to natural urban population growth and because of a steadily increasing influx from rural areas into cities and towns (especially by rural poor). It is estimated that by 2030 more than half the Asian population will be urban (equal to 30% of the world's population or 2.7 billion people), and that approximately 25% of this urban population will be poor (675 million people in Asia alone). These urban poor tend to live in low-income settlements, where they face high levels of under and unemployment and poor access to infrastructure and basic services. There is therefore an urgent and growing need to address both the lack of access to infrastructure and basic services as well as the high incidence of poverty and under/unemployment in these urban low-income settlements.

This guide provides a framework for implementing community infrastructure development in urban areas in Nepal, aimed at creating jobs whilst improving low-income settlements. After a brief introduction of basic data on urban development and poverty and an explanation of the relationship between poverty and infrastructure development, this guide presents community contracting as a means of creating employment and incomes, whilst at the same time improving the access of the poor living in low-income settlements to basic services. The guide goes into detail regarding the different steps involved in community infrastructure development in urban areas, presenting experiences from four pilot projects carried out in Nepal to further illustrate the problems to be faced and the recommended solutions.

