

**LABOR BASED ROUTINE ROAD
MAINTENANCE
*METHODOLOGY FOR PREPARATION
& IMPLEMENTATION***

ORGANISERS/TRAINERS GUIDE

Nov. 2006

LABOR-BASED ROUTINE/PREVENTATIVE ROAD MAINTENANCE SYSTEM

ORGANISERS/TRAINERS GUIDE

- **It is intended for LGU personnel planning to set up a scheme and comprises the outline and key headings of the relevant training modules for the various players within the barangay involved in the process. It also outlines the procedure for implementing the programme on the project site.**
- **The detail is provided by two technical reference manuals, which accompany and support this (Labor-based Routine/Preventative Road Maintenance Field manuals Volumes 1 & 2). These should be referred to and used during training to provide the detail and examples.**
- **It envisages the situation (as in the present UDP supported Barangays) where the maintenance and minor rehabilitation is managed by the Barangay, with support from MLGU/PLGU. Implementation would likely be by a CBO/PO contracted by the Barangay**

LABOR-BASED ROUTINE/PREVENTATIVE ROAD MAINTENANCE

- **AIM:**
- **To ensure that a road remains in a useful condition by the establishment of a sustainable labor-based routine/preventative road maintenance system within a barangay.**

- **RELEVANT SITES:**
- **All roads rehabilitated to a maintainable level. Otherwise, a certain amount of improvement work will need to be also included in the plan which will be an output of this training.**

- **TIMING:**
- **Ideally organised during rehabilitation. If the project is already finished, as soon as possible before the road begins to deteriorate.**

LABOR-BASED ROUTINE/PREVENTATIVE ROAD MAINTENANCE

- **PROCEDURE FOR THE DEVELOPMENT OF THE SYSTEM.**
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- **STAGE 1 - ORIENTATE/TRAIN BARANGAY LEVEL OFFICIALS. -
MODULE 1**
- *Output:-Activation of relevant organisation- Barangay Infra Committee*
- *Preparation of longer term plan*
- **STAGE 2 – APPROPRIATE TECHNICAL MAINTENANCE TRAINING AT
BARANGAY LEVEL – MODULE 2**
- **STAGE 3 – BARANGAY ANNUAL IMPLEMENTATION PLAN**
- **Schedule of Manpower & Cost Allocation**
- **MoA (BLGU – MLGU/PLGU)**
- **Barangay Resolution**
- **Suitable Barangay AIP**
- **Preparation of Contracts (Labor & supply) with CBOs/Pos**
- **STAGE 4 - IMPLEMENTATION & MONITORING**

LABOR-BASED ROUTINE/PREVENTATIVE ROAD MAINTENANCE

STAGE 1

(MODULE 1)

- **STRENGTHENING BARANGAY
MANAGEMENT CAPACITY**

LABOR-BASED ROUTINE/PREVENTATIVE ROAD MAINTENANCE

- **STAGE 1**
- **(MODULE 1)**

STRENGTHENING BARANGAY MANAGEMENT CAPACITY

(Together with description of methodologies for setting up a routine/preventative road maintenance system)

- **PURPOSE –**
- **To emphasise the importance of effective road management and routine/preventative maintenance, as well as how to achieve it.**
- **To clarify the roles and responsibilities of the relevant organisations and groups**
- **To enable the Barangay Council (as well as relevant CBOs/POs) to set up and manage a road maintenance programme**
- **To facilitate the preparation of a 5 yr maintenance/rehabilitation plan (Output)**
- **TARGET GROUPS– Barangay Councillors (Especially Infra Committee members) CBO office bearers (if relevant)**
- **VENUE – In the Barangay**
- **TIMEFRAME- 2 days**
- **SOURCE MATERIAL- Technical manuals – (Labor-based Routine/Preventative Road Maintenance Field manuals Volumes 1 & 2)**

LABOR-BASED ROUTINE/PREVENTATIVE ROAD MAINTENANCE

TOPICS

- **General awareness**
- **Methodologies for road management and routine/preventative road maintenance**
- **Funding**
- **Setting up/reactivation of the relevant organisational sub-body**
- **Road walk through**
- **Preparation of Barangay Road Maintenance/Rehabilitation Plan**
- **Basic capacity building eg record keeping**

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1. GENERAL AWARENESS

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- **THE PHYSICAL COMPONENTS OF A ROAD.**
[Describe]
- *The physical components & their functions and importance,*
- **KEY POINTS:-**
- *The importance of DRAINAGE*
- *A road badly designed and built or already in poor condition can never be properly maintained.*

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THE PROBLEM

- **Barangay level roads are allowed to deteriorate due to inadequate, irregular maintenance carried out often only in emergencies, ie major landslips.**
- **Structures such as culvert crossings are not maintained on a regular basis and are allowed to block up, leading to failure of the road in the vicinity.**
- **RESULT: Passage on the road quickly becomes restricted and difficult so that an expensive rehab is required.**

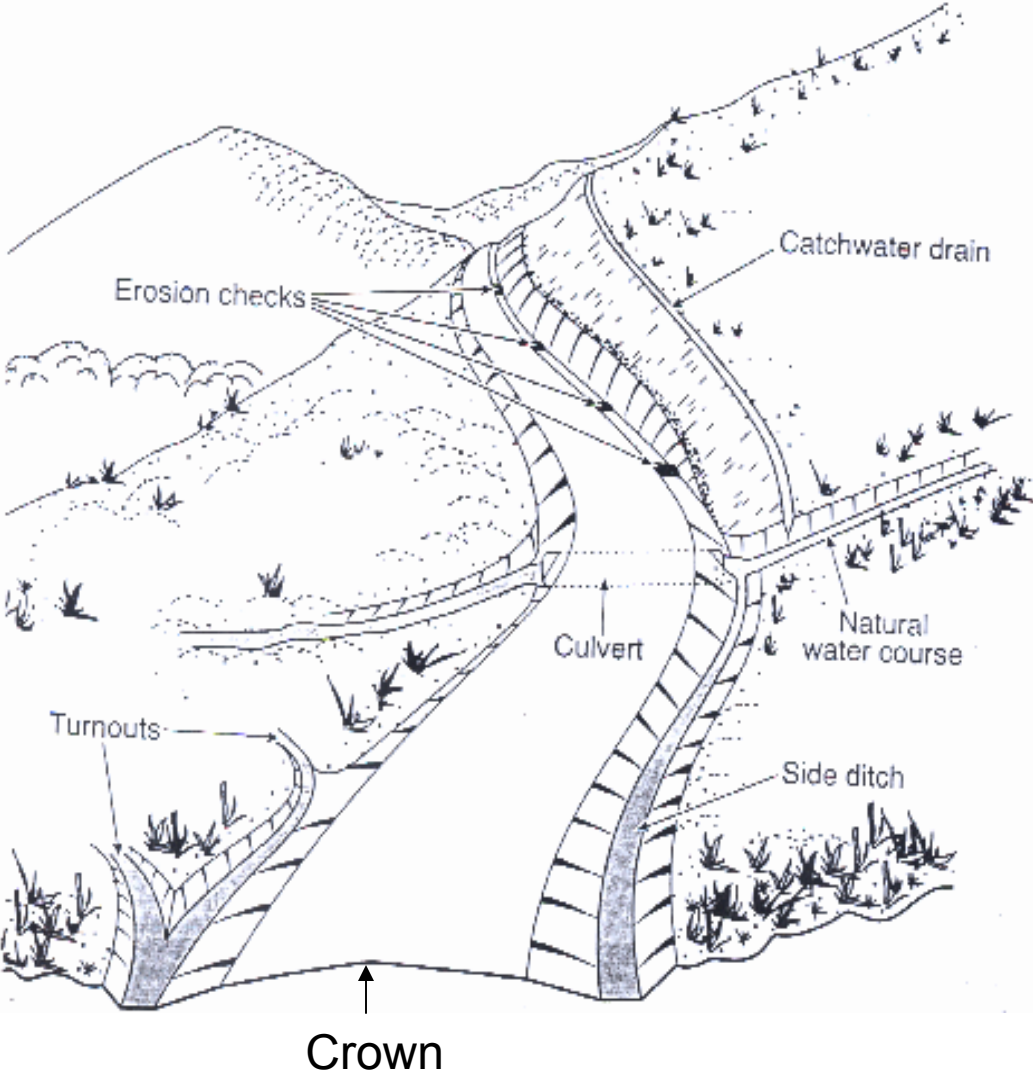
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THE SOLUTION

- **The solution is for road maintenance to be carried out on a continuous regular basis so that the road stays in good condition,**
- **ie that the critical components of the road, such as side drains, turnouts and culverts are maintained in working order so that there is no major damage to the road after each storm.**
- **This is called *ROUTINE/PREVENTATIVE MAINTENANCE***

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Typical Road Drainage Features



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COMPONENTS IN ENSURING A GOOD ROAD

- **THERE ARE 3 MANAGEMENT COMPONENTS:-**
- **REGULAR MANAGEMENT:** *Controlling/regulating the use of the road*
- **ROUTINE/PREVENTATIVE MAINTENANCE:** *Daily maintenance of the road, usually labor-based carrying out routine tasks*
- **PERIODIC/EMERGENCY MAINTENANCE:** *Irregular, more substantial maintenance and repair, usually equipment based*
- **Effective implementation of the 1st 2 reduce the requirements for the 3rd**
- **All require effective planning and management**
- **They also entail costs, therefore the need for funding**

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ROUTINE/PREVENTATIVE MAINTENANCE

- *This is the regular on-going work aimed at maintaining the design arrangements in working order so that the effects of adverse weather are minimised. It is predominantly labor-based.*
- *Examples:- maintaining side ditches & turnouts, filling potholes, cleaning culverts, cutting back vegetation*
- *Routine road maintenance can only be effective if the road has been rehabilitated to a maintainable condition*
- *PERIODIC/EMERGENCY MAINTENANCE is the not so regular tasks, eg repair of structures, removal of large landslips and reshaping of running surface after a period of wear and damage. Usually equipment based,*

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IMPORTANCE OF ROUTINE/PREVENTATIVE MAINTENANCE:

If effectively done, it can:-

- *Keep the road in a passable condition, reducing the frequency of need for equipment based periodic maintenance*
- *Reduce the likelihood of major damage & therefore the need for outside assistance in the form of machinery.*
- *Allows the upkeep to be within the capacity of the barangay.*
- *Assists the local economy by spending the funds locally.*

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RESPONSIBILITIES IN RELATION TO ROAD MAINTENANCE.

- *The Barangay Councils are legally responsible for barangay level roads.*
- *The Barangay Council Infra Committee are technically responsible for maintaining & managing the road,*
- *MLGUs/PLGUs/Congressman's Funds often allocate funds annually specifically for barangay roads*
- *CBOs can manage the maintenance but they have no direct legal access to funds such as 20% IRA.*

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2.

**METHODOLOGIES FOR ROAD MANAGEMENT
AND ROUTINE/ PREVENTATIVE
MAINTENANCE**

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2a. REGULAR MANAGEMENT. (*Regulating the use of the road*)

IMPORTANCE- *In order to prevent unnecessary damage to the road; Eg-*

- **Regulations/ordinances prepared by the Barangay Council outlining certain practices: eg:-**
 - In bad weather, closing the road or imposing fines on vehicles.
 - Discouraging damaging practices, ie carabao sleds, wheel chains – imposing fines.
- **Installing speed bumps to slow vehicle speed.**

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2b. ROUTINE/PREVENTATIVE MAINTENANCE: TASKS INVOLVED (with likely frequencies):-

- **Controlling side vegetation [Monthly]**
- **Filling ruts and potholes & maintaining road surface [Bi-monthly or after heavy rain]**
- **Clearing and repairing side ditches and turnouts [Bi-monthly or after heavy rain]**
- **Cleaning and maintaining culverts [Bi-monthly or after heavy rain]**
- **Maintenance of erosion preventive measures (vegetative/simple structures) [Monthly or when necessary]**

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TYPES OF WORK ARRANGEMENT

- **SMALL TEAMS (4/5 Men but depending on the length of road network), working on a regular daily basis. They will usually be receiving a daily wage as part of a group contract (pakyaw).**
- ***This is the most recommended as it is a more efficient and practical arrangement.***
- **In certain circumstances, for example where the network is very large, larger groups may also be used, ie a representative from each family in a sitio, operating on a bayanihan basis, eg once per month or when required. It is common that Food-for-Work is provided as an incentive.**
- ***[Eg large group (bayanihan) being used for the simpler tasks such as vegetation control, while paid labor for others such as drainage maintenance or clearing landslips]***

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TOOLS REQUIRED

IDEAL DISTRIBUTION OF TOOLS PER TEAM OF 4/5 WORKERS:-

- **BOLO/SCYTHE** (x 5 – These normally privately owned)
- **AXE** (x 5 - “ “)
- **SPADE/SHOVEL** (x 4)
- **PICK MATTOCK** (x 2)
- **DIGGING BAR** (x 2)
- **RAKE** (x 2)

- **TAMPERS (USUALLY HOME-MADE WOODEN)** (x 2)
- **ROPE/ROD/BUCKET (FOR CLEANING CULVERTS)**
- **BUNKIES (RECOMMENDED INSTEAD OF WHEELBARROWS)**

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2c. PERIODIC/EMERGENCY MAINTENANCE & REPAIR:

(It should be emphasised clearly that good routine/preventative maintenance reduces the importance of this)

The most relevant tasks-

- **Grading [*Frequency – at least annually*]**
- **Mechanical removal/repair of larger landslips [*Freq.: As required*]**
- **Maintenance of larger crossing structures ie bridges, box culverts [*Freq.: as required*]**

Sources of equipment assistance:-

- **When equipment is required, ie for grading, where it is available from.**
- **Eg MLGU, PLGU: On what basis- *ie full rental or simply supplying fuel/oil & drivers allowance***
- **Also local truck owners who could assist with stockpiling material for routine maintenance**

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2.d. LIKELY COSTS

- A rule of thumb for maintenance activities is 1 man/km. However, this may vary according to the situation. If improvements are planned, such as humps, more side ditching and small structures, this will increase the labor requirements and costs.

MAINTENANCE ACTIVITIES	Ann. Cost/5km	Ann.Cost/11km
• Maintenance labor (eg P125/day; 20days/month)	P150,000	P30,000
• Foreman (P200/day)	P 48,000	P 9,600
• Tools – Set per team of 5 men (Average Cost)	P 3,700	P 740
SUBTOTAL	P201,700	P40,340

- **SMALL REHAB/IMPROVEMENT ACTIVITIES**

- Ave Cost/unit Hump
 - Digging side ditch (m)
 - Sandbagging (Sq.m) [Labor & materials]
 - Spot gravelling (Sq.m) [Labor & materials]

Where the road network within the barangay is large, potential high cost can be reduced by combination with Bayanihan, ie permanent workers carrying out more critical tasks, with occasional tasks such as vegetation control carried out by bayanihan. Can also be combined with regular periodic mechanised work such as annual grading.

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3.

FUNDING

3.a POSSIBLE FUNDING SOURCES

- **Barangay IRA (20% Development fund)**
- **Municipal & provincial grants/Congressman's fund**
- **Toll fees**
- **Other funds, ie fees from barangay operated infra eg drying floors;**
- **Grants from civic organisations**

3.b. METHODOLOGIES FOR INCOME GENERATION

- **LGU planning and funding system *[Effective AIP]***
- **Importance of active contact/liaison with Municipal & Provincial government – influencing Municipal planning, tapping available funds & assistance**
 - *[How the Municipal AIP is arrived at]*
 - *Lodging Barangay AIPs on time with MLGU;*
 - *Being aware of available funds at MLGU & PLGU;*
 - *Active participation at MLGU & PLGU levels*
- **Implementing income generating activities, eg toll roads**

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SETTING UP A TOLL FEE SYSTEM – Main factors:-

- **What is the most suitable situation** *[ie the road between Bgy proper and outside. NB. Bgy Council can only collect tolls on roads that they are responsible for]*
- **What should be taxed** *[eg Traders & passenger vehicles, skylabs: also by wt of produce]*
- **Ordinances** *[Drawn up by Bgy Council, endorsed by Municipal Council])*
- **How to manage it** *[How to collect fees, fee rates]*
- **Where to keep the funds** *[Usually in the general fund, possibly in a special account]*

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3.c. IMPROVED PRIORITISATION & ALLOCATION OF AVAILABLE FUNDS.

IMPORTANCE OF IMPROVED PLANNING AT BARANGAY LEVEL –
[Preparing a more useful & effective Annual Budget & AIP, as a means of improving activities management within the barangay, but also assisting beneficial planning at MLGU level]

- **Prioritisation of requirements and activities**
- **Accurate estimates of likely costs**
- **Optimal allocation of funds**
- **Timely completion of Barangay AIP *[Oct/Nov of preceding year]***
- **Importance of monitoring of expenditure *[Especially to assist future planning]***

4. RELEVANT SUB-BODY (Infra Committee):

- **The importance of this being formed and activated in order to directly manage a project**
- **Who are it's members**
- **It's responsibilities [*Identifying requirements; Preparation of estimates; management of infra activities, eg road maintenance*]**

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5. A WALK/PASSAGE ALONG THE RELEVANT ROADS

This should identify:-

- The maintenance and practical rehabilitation requirements within the network.**
 - The likely management/organisational requirements**
-
- Take a means of recording**
 - Take a means of measuring approximate distance/position
(*Chain, tape measure, GPS*)**
 - Note all rehabilitation requirements, as well as maintenance, as these need to be addressed in the longterm plan**
 - The assistance of the MLGU Engineer is essential to the group to arrive at estimated costs in the formulation of the plan**

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6. BARANGAY ROAD MAINTENANCE/REHABILITATION PLAN

- **This should be formulated by the Barangay as an output following presentation and discussion of the components 2 – 5 of the module. Ideally, this should be a 3-5 year plan, which should include indicative costs, what funds are likely to be available and therefore what further funding is required.**
- **As well as a management tool, it can be a relevant document for presentation to potential funding sources.**
- **It should focus on the work that the Barangay can manage itself, ie maintenance and smaller rehabilitation. However, where larger rehabilitation is needed, such as a bridge/box culvert construction, it can be included and the document will serve the purpose of soliciting support for the construction of these.**

7. BASIC CAPACITY BUILDING (as required)

- **Eg appropriate record keeping [*Good record keeping is important, in order to aid effective planning and use of funds. Also Pakyaw contract record keeping by the CBO*]**

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STAGE 2

MODULE 2

APPROPRIATE TECHNICAL MAINTENANCE TRAINING AT BARANGAY LEVEL

- **PURPOSE – To ensure that there is good practical knowledge of the routine maintenance tasks in the Barangays prior to beginning maintenance schemes**
- **TARGET GROUP - Relevant Barangay (Infra Committee) officials & supervisors. Relevant CBO staff**
- **VENUE – On-site, A suitable road network**
- **TIMEFRAME – Over 10 days**

**LABOR-BASED ROUTINE/PREVENTATIVE ROAD MAINTENANCE
APPROPRIATE TECHNICAL MAINTENANCE TRAINING
AT BARANGAY LEVEL (Contd)**

- **Practically based. Supervised by Municipal Engineers.**
- **Aimed at the supervisors of the laborers/gangs, as well as the laborers themselves.**
- **Carried out by practical demonstration and actual practice on site**
- **It is important that those managing and implementing the project understand how to do the tasks effectively, especially the drainage systems.**
- **The Field Manual (Volume 2 – The Practical Tasks in Detail) describes each type of task, especially:**
 - **Its purpose**
 - **Where & how to do it**
 - **How often & when to do it**
 - **Labour & mandays required**
 - **Tools required**
- **Relevant tasks:**
 - **Control of vegetation**
 - **Maintenance of running surface (including stockpiling)**
 - **Maintenance of side drains and turnouts**
 - **Maintenance of culverts, drainage crossings**
 - **Erosion prevention – vegetative/simple structures**

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STAGE 3

ANNUAL BARANGAY IMPLEMENTATION PLAN (*1 year*)

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STAGE 3

ANNUAL BARANGAY IMPLEMENTATION PLAN *(1 year)*

- Each year the Barangay Council and the MLGU should prepare the following (Based on the longer term plan):
- **SCHEDULE OF MANPOWER AND COST ALLOCATION**
- **A MoA between the parties providing inputs to the programme (Notably BLGU, MLGU, PLGU)**
- **A BARANGAY RESOLUTION formalizing the intension to implement the programme**
- **A Barangay AIP which reflects the requirements of the Plan and cost allocation**
- **Preparation of a contract between the Barangay Council and the implementers ie CBO/PO**
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- **Possibly also preparation of a contract to supply materials (for rehab activities)**

LABOR-BASED ROUTINE/PREVENTATIVE ROAD MAINTENANCE

ANNUAL BARANGAY IMPLEMENTATION PLAN (Contd)

- **The annual plan should be presented/discussed with all involved (Barangay Council, Municipal staff, Community, CBOs). The essential items to be addressed/clarified:**

A. SYSTEM OF MAINTENANCE OPERATION.

- **Contracts to locally based CBOs (Labor and Supply) - *Presentation and clarification of relevant contracts***
- **METHOD OF WORKING. Selection/rotation of key workers to form maintenance teams; daily wage; Days/hours of working**
- ***(If Bayanihan to be included, Allocation of activity among the puroks, ie which section of road network a purok may be responsible for; days of work; Reparation (Food-for-work)***
- **SUPERVISOR; Someone must be selected who will be regular & has been trained (eg member of Bgy Council Infra Committee).**
- **TOOLS: Who will keep and issue them (Ideally Barangay Council or CBO).**
- **CERTIFICATION ARRANGEMENTS. Who will be responsible for verifying work accomplishment and labor attendance, and certifying payments.**

LABOR-BASED ROUTINE/PREVENTATIVE ROAD MAINTENANCE

ANNUAL BARANGAY IMPLEMENTATION PLAN (Contd)

- B. SYSTEM OF ROAD MANAGEMENT: Eg. if and how vehicle traffic will be controlled in bad weather. [Preparation of ordinances]**
- C. PERIODIC MAINTENANCE (eg grading): Consider the needs for this; What it's cost and how to fund it.**
- D. : Where the funds will come from to support the workers; Other funds set aside for periodic road maintenance purposes; How additional funds will be raised, if necessary.**
- **If a TOLL FEE system is to be set up, how it will be organised: What users will be taxed; Rates for each type of user; Where will the gate be placed; What will be the arrangement for managing the gate; In what account will the income be kept. [*Preparation of ordinances*]**

LABOR-BASED ROUTINE/PREVENTATIVE ROAD MAINTENANCE

STAGE 4

IMPLEMENTATION AND MONITORING

LABOR-BASED ROUTINE/PREVENTATIVE ROAD MAINTENANCE

STAGE 4

IMPLEMENTATION AND MONITORING *(Once all formal training is complete)*

- This must be supervised closely in the early stages especially (by the municipal personnel).
- **SUPERVISION OF MAINTENANCE WORK:** It must be ensured that this is being carried out as effectively as possible, from the point of view of both usefulness and cost. On-the-job training as necessary.
- **SHORT TERM PLANNING:** Especially the 15 day target plan *(see example in Field manual Volume 1)*
- **ACCOUNTING/MONITORING SYSTEM:** Making sure that the accomplishments, labor records are being properly kept, the costs, payments and income being clearly recorded. *(See relevant record formats – Field Manual, Volume 1) This will be particularly relevant where there is a pakyaw contract.*
- **SETTING UP THE INCOME GENERATING SYSTEM (eg TOLL FEE);** Preparing necessary ordinance by Barangay Council; endorsement at Municipal Council level; Necessary awareness/announcement for regular road users; installation of gate.