Appropriate bituminous surfacings for labour-based construction

By The International Division, Transport Research Laboratory (TRL) Limited, UK

Background

Roads in rural Africa, in particular gravel roads, are vital to the socio-economic well being of local communities. They provide access to schools, clinics, jobs, markets, neighbouring communities, and a link to the higher order road network. Therefore, whilst these roads tend to carry relatively low levels of traffic, they play a very important role in the development of rural areas, and it is vital that they remain open to traffic throughout the year, including the wet season. One possible method of achieving this is to seal the gravel running surface with a thin bituminous surfacing.

In 1999, the UK’s Department for International Development (DFID) commissioned TRL to develop a manual that would provide sound, research-based advice on the suitability of alternative bituminous surfacings and on their construction. As part of this initiative TRL constructed a variety of surfacings using bitumen emulsions in Mozambique using labour-based techniques. The lessons learnt during the construction of these trials and their early performance will be incorporated in a manual that is to be produced sometime this year.

The trails in Mozambique form part of a Feeder Road Project in Zambesia Province carried out on behalf of the Provincial Directorate of Public Works.
Editorial

“After September 11th – A Greater War on Poverty?”

Recently, a radio report started with the cost of the “War on Terror”, around seven million US dollars per day (equivalent of an annual investment of about US$2,500,000,000) committed quickly as a reaction to the events of September 11th, 2001. This is equivalent to roughly 25% of the total Official Development Assistance to the least developed countries of US$10,574,700,000 in 1999. (Source: UNDP Human Development Report 2001)

Later followed an African report concerning over fifty killed in ethnic violence. The root cause was quoted as being more in the desperation of grinding poverty than in ethnicity.

The 10th May 1944 ILO Philadelphia Declaration stated, "Poverty Anywhere Constitutes a Danger to Prosperity Everywhere". Disparities between the richer and poorer are increasing. In 1960, the 20% of the world's population living in the highest per capita income countries had incomes 30 times greater than the world’s poorest 20%. By 1990, these were 60 times greater. (Source: UNCHS Habitat). The playing field, if anything, has become more tilted in favour of the wealthy.

Since September 11th, 2001, the World is simply not the same. To what degree have these inequities contributed to this new World order? What emphasis should be placed on addressing them?

Poverty and lack of opportunities are clearly common factors. The way forward to a more secure and equitable world must surely entail the commitment of comparable and sufficient resources to impact on poverty, ensuring opportunities for decent work, and the provision of sustainable access to basic infrastructure and services for all. Stakeholders in development will need to increasingly work together in partnerships, adding value to the common effort in the "War on Poverty".

Poverty and lack of opportunities are clearly common factors. The way forward to a more secure and equitable world must surely entail the commitment of comparable and sufficient resources to impact on poverty, ensuring opportunities for decent work, and the provision of sustainable access to basic infrastructure and services for all. Stakeholders in development will need to increasingly work together in partnerships, adding value to the common effort in the "War on Poverty".

For our next letters page, please let us have your views on the "War on Poverty"!

Graham Johnon-Jones
Programme Director,
ASIST Africa
Donor assisted programmes for the labour-based roadworks sector have mostly focussed on the construction and maintenance of gravel roads. Gravel surfacing is rightly viewed as an appropriate low cost solution to rural access problems in many circumstances in developing countries.

However, recent DFID research now being documented makes a strong case for a more rigorous approach to evaluation of road surfacing options than hitherto adopted, in particular where extremes of conditions are encountered.

A gravel/laterite road surface can be appropriate where material quality meets surfacing specifications, gravel haul distances are short (typically less than 10km), longitudinal road gradients are less than about 6%, rainfall is low or moderate, traffic is not excessive, finance and resources are going to be available for the necessary ongoing periodic regravelling, and dry season dust generation is not severe. A gravel/laterite surface can also be appropriate as part of a planned and properly resourced ‘stage construction’ approach.

Unfortunately, the above suitability criteria are often not met. Furthermore, gravel is a ‘wasting’ surface and surface losses due to the effects of alignment, traffic and weather can be typically 2 to 5cm per year or more, even for good quality surfacing material. The use of poor quality material will result in increased rates of gravel loss. Furthermore, haul distances can be long, and will inevitably increase as available or accessible gravel deposits are worked out. Many engineers are now reporting increasing difficulty in finding gravel deposits which both meet surfacing specifications and are within reasonable hauls. Gravel surfacing can create a substantial periodic maintenance regravelling liability for local authorities and communities. This can be in the range of US$400 - 2,000/km/year on an annualized network basis. Many organisations/communities currently lack the resources and/or capacity to provide adequate maintenance, and the risk is high for deterioration back to earth standard. There are also environmental and other justifiable concerns relating to gravel surfacing.

Fortunately, there is a range of alternative surfacing and paving options proven in various countries which could provide appropriate, economical and sustainable alternatives in many instances. Suitability will depend on local circumstances. These alternatives, together with an appropriate use of the available gravel materials, may be cheaper in whole-life-cost terms. Some of these alternatives can be constructed by labour and light equipment methods suitable for rural road application by small local enterprises and would have lower maintenance (and therefore more manageable) requirements than gravel.

Existing national standards for rural road surfacing usually provide insufficient opportunities and guidance for the use of gravel and alternative road surfaces. A more rational design approach is required which takes due account of local conditions and road environment, traffic characteristics and loading, maintenance, resources, technical and implementation options, environmental and whole life cost considerations. Technical options should be considered for each section of road, costed and consideration given to socio-economic factors. It is likely that in some cases justification could be made to construct different surfaces on various sections of a route (e.g. hill sections or through villages). On strong subgrades with low or light traffic there is a good case for leaving roads to an engineered earth road standard. What in effect is happening is that the ‘window for gravel’ is being squeezed from below by earth roads. From above, alternative surfaces, including bitumen seals, can be justified at lower traffic levels than hitherto thought.

Intech Associates is preparing guidelines on the use of alternative surfaces for rural roads and welcomes information on the experiences (good or bad) of readers on any of the alternative surfaces.

Documents will shortly be made available through the DFID Transport Links website.

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APPRIOPRIATE SURFACING

By Robert Petts, Intech Associates, UK

Dressed stone paving is still used in many European cities.
Traffic counts taken at the site of the trials at Mocuba showed that 95% of the traffic consisted of bicycles with the remaining 5% being motorised vehicles. During an 8-hour traffic count over 800 bicycles were counted, a third of which were observed to be “load carrying”. These loads included sacks of charcoal, building materials and passengers, illustrating the importance of rural roads to the social and economic development of the area.

**Purpose**

The overall purpose of the trials was to demonstrate how locally available materials can be used in bituminous surfacings whilst still adhering to established design principles. This overall purpose can be divided into the following objectives:

- to establish viable methods of constructing bituminous surfacings where mechanised construction equipment and good quality road building materials are not readily available;
- to demonstrate the construction of recognised types of bituminous surfacings where good materials are available but construction is primarily labour based;
- and to extend current technology and recommendations to allow the use of a wider range of materials in the production of effective bituminous surfacings.

**Types of surfacings**

The bituminous surfacings used during the construction of the trials were:

- Single and double sand seals
- Gravel-bitumen seals (Otta seals)
- Single and double surface dressings
- Pre-mixed bitumen and gravel
- Penetration macadam

**Site preparation**

A length of existing gravel road was prepared for the trials. The gravel wearing course material was scarified, re-profiled with a grader and then compacted with a pedestrian roller to form the base of the road. The majority of sections were then primed with either MC30 or an inverted emulsion. Only the section surfaced with the penetration macadam was left unprimed prior to construction of the surfacing.

**Bitumens used in the trials**

The local labour force employed for constructing the trials had no experience of using hot bitumen and, for reasons of safety and to minimise environmental damage, only bitumen emulsions and an MC30 primer were used. The bitumen emulsions and primers were supplied to the site in 200 litre drums. Application of the bitumen was easily carried out at ambient temperature by hand lance via a motorised pump, or by watering cans.

**Aggregates used in the trials**

Three sources of aggregates were locally available for use in the trials. These were:

- **A rounded natural gravel:** This material, which is screened to remove particles larger than 12mm in size, was used for the gravel-bitumen seals and the pre-mixed material;
- **Selected sizes of hand-knapped rock:** This was used in the penetration macadam and surface dressing constructions; and
- **A fine sand:** This was used for the sand seal applications.

A wire mesh screen, fixed in a wooden frame, was used to remove any oversize particles in the aggregates.

During the construction of the thin seals the screened aggregate was applied to the sprayed emulsion by hand or by shovel. For the pre-mixed material, the aggregate and emulsion were mixed in a portable concrete mixer. The mixed material was then transferred to a wheelbarrow, tipped and then spread by hand using shovels and rakes.

**Quality control during construction**

The performance of thin bituminous surfacings depends heavily on the rate of spray of the bitumen emulsion and, in some cases, the rate of spread of the aggregate. It is therefore extremely important that these application rates are closely controlled.

For the bitumen emulsions, this was done by sub-dividing and marking out the gravel surface into 1m² areas. The correct volume of emulsion required to give the specified spray rate in this area was then measured into watering cans prior to application. Spraying bitumen using the hand lance required a calibration procedure, which consisted of measuring the volume output of emulsion from the spray bars for a given time. From this calibration it was
possible then to calculate the spray time required which would deliver the correct amount of emulsion for the pre-marked area.

Where necessary, the aggregate spread rate was controlled using measured volumes of the material dispensed from plastic buckets or wheelbarrows.

The hand laying of pre-mixed bituminous material usually requires previous practical experience, as it must be laid and raked to give a uniform thickness and level prior to compaction. The workforce used during the construction of the trials did not have this experience and therefore wooden batons, of the correct thickness, were placed longitudinally along the length of the prepared gravel surface prior to laying the material. The pre-mixed material was then spread between the batons using rakes and then finally screeded to give the required level.

**Compaction of bituminous surfacings**

The different types of bituminous surfacings used in the trials required varying degrees of compaction. For all the surfacings the initial compaction was carried out using a pedestrian roller.

The penetration macadam, surface dressing and pre-mix surfacings then required extra compaction and this was achieved by using a loaded lorry.

**Future monitoring**

The performance of the different bituminous surfacings is to be monitored after the wet season, approximately six months after their construction. The observations made during the construction of the trials and their subsequent performance will then be incorporated in the construction manual that is to be published this year.

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*Compaction using a pedestrian roller.*

*Compaction using a loaded lorry.*
Kenya was one of the pioneers in developing and implementing labour-based road works. In the 1970’s and early 80’s the Rural Access Road (RAR) programme constructed 8,000km of rural access roads in Kenya including 700km in Coast Province.

The RAR programme evolved into the Minor Roads Programme (MRP) that was implemented in the 1980’s and early 1990’s. The main difference in the two programmes was that MRP concentrated on improving existing minor roads and at the same time maintained the RAR roads. Under MRP, improvement works were carried out by force account and routine maintenance was implemented through the lengthman system.

In the early 1990’s as part of the Road Maintenance Initiative (RMI) the Government of Kenya (GoK) started developing a new strategy for maintenance of rural roads referred to as Roads 2000. The name derived from a milestone to have the new strategy in place and being implemented throughout Kenya by the year 2000. Unfortunately, by the year 2000, the Roads 2000 strategy was only being implemented in four districts in Coast Province supported by DANIDA and two districts in Central Province supported by SIDA.

The Roads 2000 strategy has the following main components:

- Network approach: Funding is spread to increase accessibility throughout the network through spot improvements, instead of improving relatively few roads to a high standard.
- First priority is routine maintenance of maintainable roads.
- Second priority is partial rehabilitation of un-maintainable roads, re-establishing the camber and drainage but no gravelling.
- Third priority is spot improvements such as minor structures, protection works and spot gravelling.
- Labour-based methods are used for implementation wherever cost effective. This translates to almost 100% labour-based maintenance on rural access roads and minor roads, whereas, for larger unpaved feeder roads and paved roads, labour-based maintenance accounts for all the drainage and off carriageway works.

**Putting routine maintenance first!**

Experiences from routine maintenance using small scale contracting in Coast Province, Kenya

*By Eric Goss, Roads 2000 Coast Province, Kenya*

Maintenance is labour-based wherever cost effective. This translates to almost 100% labour-based maintenance on rural access roads and minor roads, whereas, for larger unpaved feeder roads and paved roads, labour-based maintenance accounts for all the drainage and off carriageway works.
100% labour-based maintenance on RAR and minor roads. On the larger unpaved feeder roads and paved roads, labour-based methods are used for all the drainage and off carriageway works. On carriageway, towed graders are used on the smaller roads and motorized graders on the larger roads to supplement works. Spot gravelling on minor roads is labour-based, while gravelling works on larger more trafficked roads is machine based.

• Initially the strategy was based on 100% force account. In 1997, as part of the GoK strategic plan for the roads sector, this was changed to encourage the use of the private sector wherever cost effective.

The current Roads 2000 Coast project covering Kwale, Kilifi, Malindi and Taita Taveta Districts started in July 1999. It is a continuation of an MRP project in the same districts that Danida supported from 1993 to 1999. The project has several components but this article will focus on the small-scale routine maintenance contractors.

In order to carry out routine maintenance, it is first necessary to have some roads that are in a maintainable condition. Fortunately, approximately 700 km out of a total of 3000 km unpaved network in the four districts were in a maintainable condition at the start of the project.

Selection criteria
The next step was to define the right people to train as contractors. With the assistance of Kisii Training Centre (KTC) the following criteria for the trainees was established:

Group A
Previous headmen or lengthmen that had worked on routine maintenance of roads under MRP with the following qualifications:
• able to communicate in writing
  – minimum eight years of schooling
• have a minimum of three years of experience in labour-based road works
• be between the ages of 25 and 45 and have a permanent address.

Group B
Businessmen/women or organized groups that are willing and capable to venture into routine maintenance of roads with the following qualifications:
• able to communicate in writing
  – minimum eight years of schooling
• must have a good business track record
• be between the ages of 25 and 45 and have a permanent address.

For both categories women were encouraged to apply. Selection committees in the districts consisting of representatives from both the public and private sector were responsible for advertising and short-listing the applicants.

Contract document
The project together with the Ministry of Roads and Public Works developed a draft contract document based on similar documents used in Uganda and Tanzania. The contract document is only 35 pages, but contains all the elements of a contract document such as obligations on the part of the contractor and the employer, specifications and a bill of quantities. The activities include 21 routine maintenance activities and 8 improvement activities for sections of the road that require improvement.

The main concept of the document is that each month the contractor is instructed on what works to do, the following month the completed works are measured, payments prepared and new instructions given.

It is anticipated that each contractor will be able to maintain a minimum of 20 km over a period of three to six months. The average cost per km is budgeted at 20,000 Kenya Shillings (KShs.) (250 USD), giving a contract sum of approximately 400,000 KShs. (50,00 USD).

All tendering and payment procedures are done through the normal government systems, although this can be cumbersome and lengthy it teaches the contractors to survive in the real world! Only the training is paid directly by the project.

Training
The training was carried out by KTC and has been improved with each course. The final programme involved twenty contractor trainees, together with five overseers trained for three weeks within one of the programme districts as follows:
• Week One: Theory in the classroom.
• Week two: Practicals on the road,
specifications being demonstrated.

- Week three: Trial contract with fixed rates to maintain one km of road within four days including initial quantities, hiring labour, measuring completed works, preparing payrolls and calculating profits!

The contractor trainees then undertake a one-month trial contract on 10 km of road in their home districts using fixed rates. The trainers evaluate both the trainee contractors and their “trainee” overseers during the trial contract. A final one-week of theory on business issues mainly concentrating on the tendering procedures completes the training package.

The cost of this training package is approximately 60,000 KShs. per trainee (770 USD), this excludes the cost of the one month trial contract which is approximately 150,000 KShs. (2,000 USD) per trainee.

**Achievements**

A total of 113 contractors including 24 women have been trained. Out of these 108 qualified and 5 failed (all men). Through the trial contracts these contractor trainees have maintained a total of 900 km. Eighteen overseers and six roads inspectors have also been trained (two overseers failed). The first 68 qualified contractors tendered for contracts this financial year and 40 were awarded contracts and have started work on site. The works carried out are generally of good quality and the value for money is better than works by force account labour gangs. The contractors employed a larger percentage of women than the force account, 33 % as opposed to 26%.

**Problems and lessons learnt**

- The general public and especially the politicians do not see routine maintenance as a priority! Only after several years of continued routine maintenance is it possible to convince the public that more is achieved by routine maintenance and spot improvement than if all the funds were used on the worst roads.

- The main reason that some of the contractors failed is that the project was not strict enough in enforcing the trainee qualifications at the selection stage. The trainees that failed were all fairly old and not fully literate.

- Full payment of casual wages has been a problem. What do you do if the contractor trainee incurs a loss during the trial period?

- Procurement of tools: The project has had to advance some funds to buy the minimum hand tools required.

- Supervision: The main reason for poor performance has been poor supervision. The project is now focusing on supervision, defining the roles of the supervisors, and looking at what is required for them to supervise professionally.

**The future – Sustainability**

The project hopes to continue in a second phase, in which case some of the successful contractors can be given further training on spot improvements such as culverting and spot graveling. The thorny issue of equipment for such works would need to be resolved.

Even if the project does not continue, there is now maintenance funding from the GoK Road Maintenance Fuel Levy Fund. 16% of the total collection is distributed to the districts for maintenance of minor roads. For this financial year this amounts to 66 million KShs. for the four districts. With a network of approximately 2600 km of minor roads this translates to 25,400 KShs. or 325 USD per km. While this level of funding might not be adequate, it is sufficient to sustain the contractors trained. It should also be noted that this level of funding is available throughout Kenya and the contractor training could therefore be extended to cover the whole country.

With the new Kenya Roads Board in place and government funding finally reaching the rural roads the future for labour-based road maintenance in Kenya is looking better than it has been for a long time.

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Leasing for small contractors in the African construction sector

By Linda Deelen, Social Finance Programme, ILO, Geneva and Kwaku Osei-Bonsu, ILO/EAMAT 1, Ethiopia

Small contractors working on labour-based infrastructure programmes often have limited access to formal financial services. They usually have to rely on their own family resources to finance the acquisition of construction equipment. Small contractors’ difficulties in obtaining credit either from banks or other financial institutions is often the major constraint to market entry and growth of their contracting business, and can result in the use of the wrong type of equipment and in liquidity constraints during the execution of the works. A typical small construction company that already owns one roller but needs to buy a trailer for a public works tender, will find it difficult to convince the local bank manager to finance the expansion.

Bankers are reluctant to finance these contracting firms because they have no certified financial statements that show their profits and cash flow over the last few years. In many cases, they are unable to offer any collateral when they request a bank loan. In almost all cases, the contracting agencies are public entities that struggle to make timely payments to the contractors. All these factors together contribute to the financial institutions perception that it is too risky to give loans to small contractors.

Within public works programmes, there are different ways to overcome the problem of financing equipment that contractors face. The two most obvious ways are bridge financing and leasing.

**Bridge financing**

In bridge financing large loans for short terms are given out, using a construction contract as guarantee. Bridge finance is equally common in agriculture, for farmers to “bridge” the period from which the investment in the crop is made to the time that the harvest is sold. In the construction sector, it is
not uncommon for contracting companies to ask their bank for a letter of credit when preparing for a tender. The firm submits the letter of credit with their tender proposal to show the contracting agency that they have financial backing. Experience shows, however, that banks are disinclined to provide bridge finance to contractors when the contracting agency is a public entity. Work contracts, as such, do not guarantee payment, which ultimately depends on the performance of the contractor and the administrative procedures of the contracting agencies.

**Leasing**

Another option for contractors is to look for a leasing arrangement. Leasing is a common way for small and medium-sized enterprises all over the world to finance vehicles, machinery and equipment. Over the last decade, the leasing industry in developing countries has seen a spectacular growth.

Financial leasing is a contractual arrangement that allows one party (called the lessee) to use a piece of equipment owned by the leasing company (called the lessor) in exchange for specified periodic payments. During the lease period the lessor retains legal ownership of the equipment. Most leasing contracts will include the option for the lessee to purchase the piece of equipment at the end of the lease term for a certain price.

The great advantage of leasing for contractors is the absence of collateral requirements. The equipment itself will serve as security for the transaction. If the contractor is unable to make the periodic payments the leasing company can simply repossess the equipment. A leasing arrangement can therefore be concluded easier and faster than a bank loan.

**Experience from Uganda, Ghana, Zambia and Sudan**

The ILO has assisted in the setting up of leasing schemes for small contractors in Uganda, Ghana, Zambia, and recently Sudan. In all cases, the financing of the equipment for the contractors was regarded as a bottleneck for the implementation of a public works programme. In Uganda, the Ministry of Public Works took up the role of lessor. Small contractors leased equipment packages with values between 40,000 USD and 191,000 USD. Although the set-up with the Ministry playing the double role of contracting agency and lessor was not considered optimal, repayments by the contractors were generally satisfactory. A similar scheme was set up in Ghana, with the involvement of a local bank as lessor. Both schemes have been successful in equipping the contractors and improving their competitive position.

In Zambia, a financial NGO was engaged as lessor for the local contractors working on the rehabilitation and maintenance of feeder roads in Eastern Province. While the performance of the financial NGO in this scheme was at times below expectation, the contractors were eager to participate and complied with their repayment schedules as much as possible. Experience in these countries shows that the contractors working on labour intensive public works make up a serious clientele for leasing.

**ILO leasing project**

The ILO Employment-Intensive Investment Branch and the ILO Social Finance Programme have recently started a programme on leasing within the framework of public works programmes. The main objective of the programme is to assist financial institutions in Africa in setting up leasing schemes for small enterprises in the construction sector. Small contractors will be assisted to understand the pros and cons of leasing and learn to negotiate favourable leasing contracts with financial institutions. One of the outputs of the programme will be tools and training materials on leasing, both targeted at the financial intermediaries and the construction firms. Special attention will be given to opportunities for female entrepreneurs in Africa to expand their business through lease finance.

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**Rural road maintenance in Peru — The search for sustainability**

*By Serge Cartier van Dissel and Alessandra Molz, ILO, Peru*

Travelling rural roads in Peru has long been a problem, but in 1996 a viable solution was found that also provides sustainable jobs and social benefits for the rural population. Some 400 micro-enterprises were formed, providing routine maintenance for almost 12,000 km of rural roads using simple tools. The enterprises are comprised of 8 - 12 associated members, men and women, each person attending approximately 2.5 km. The work involves filling potholes, cleaning drains and culverts, repairing retaining walls, etc.

But the financial survival of these enterprises is a big concern. The micro-enterprise based maintenance system is currently financed and supervised by the Rural Roads Programme (PCR¹), which receives substantial funding from the World Bank and the Inter American Development Bank. However, in order to be sustainable, these responsibilities should be passed to those entities which are by law responsible for ensuring rural road maintenance – the municipalities.

But are the municipalities prepared for this? The question was examined in 1998 with support of ILO Lima. The result showed that municipalities would only be able to fund 10 - 20% of the maintenance costs, due to a centralised budget and restrictive regulations concerning recurring costs such as road maintenance, and that the necessary management capacity was lacking in most municipalities. In response, the PCR started a capacity building process with municipalities, to enable them to better manage road maintenance. Additionally, the government recently allowed municipalities greater flexibility in using the funds, which is expected to have a positive impact on the sustainability of the micro-enterprises.

1 Programa Caminos Rurales (PCR)
Imbedding labour-based (equipment-supported) technology in the Philippines – A constraining environment?

By John van Rijn and Geoff Edmonds, ASIST – Asia Pacific, Thailand

Although the Government of the Philippines has issued a number of policy statements embracing the principle of labour-based (equipment supported) (LBES) technology, it is not embedded within the different infrastructure providing agencies. The policy statements make it clear that LBES technology should be used whenever it is technically and economically feasible.

The Department of Public Works and Highways (DPWH) is the only institution applying LBES technology for construction and up-grading of “Barangay” (farm to market) roads. Together with the Department of Labour and Employment, DPWH and the Department of Interior and Local Government, ASIST-Asia Pacific carried out a study to assess how an enabling environment for LBES technology could be encouraged at the local government levels. The following is a summary of issues found that influence the uptake of this technology.

Technology choice

Many partners are involved in the actual selection of technology of road works, the engineers and technical staff in the district and regional offices of DPWH and of the Local Government Units (LGU’s) (provinces and municipalities), and the contractors. The behaviour of the different providers of the road infrastructure with regard to technology choice is determined by a number of factors:

- Knowledge of LBES technology
- Attitude towards the technology
- Actual benefits and disadvantages of the technology
- Perceived benefits and disadvantages
- Value given to the different benefits and disadvantages
- The social norm towards the technology
- Knowledge and skills on the use of the technology
- Financial environment and other environmental barriers (required inputs)
- Beliefs that behaviour can be changed
- Interests, objectives of actors (short and long term)
- Social influence by others
- Risk perception
- Official procedures
- Moral responsibility
- Feedback about effectiveness of the technology
- Information distribution and acceptance

Besides those who are directly involved in implementation of works, others like the facilitators, who are mainly based in the DPWH headquarters, the managers (district and regional engineers of DPWH) and political leaders (congressmen, governors and mayors) play an important role. The facilitators are those who are involved in preparing the standards for specifications and contract procedures. These individuals and their organisations ideally have the same objectives, however, this is not always the situation.

Knowledge and skills

Almost every technical official of the DPWH knows what the technology involves. Many of them have working experience on LBES works under administration (force account). Until recently, LBES works were never contracted out.

Although some municipalities are applying LBES, provincial engineers and the contractors have little or no knowledge of the technology, often mistaking it for labour-intensive approaches.

In general, political leaders (governors, mayors and congressmen) and the public do not know what LBES is. The concept is mistaken either for work under administration or for labour-intensive approaches. None of the political leaders interviewed were aware of the different government policies on LBES technology.

Attitude

DPWH applies LBES technology on Barangay roads. The technology is hardly ever applied on regular projects of the DPWH. The fashion of the day within the DPWH is “fast tracking” of projects.

Many of the DPWH staff perceive the technology only useful for employment creation and as old-fashioned. Mechanisation is considered as technology development. They agree that technology is a production process requiring more than just equipment and labour, and they understand that LBES technology requires more sophisticated management and organisation. However, they do not recognise this as an aspect of technology development. Technology development is looked upon from a pure technical perspective and not from the objectives of technology development, i.e. new products and cost reduction of construction.

Quality of works

DPWH is divided into two camps with regard to the issue of whether LBES technology would result in the same quality as equipment-based technology when applied on the highways. The DPWH officials active in the Barangay road construction and the officials responsible for quality control believe that the technology can deliver the same quality. The top management (district and regional engineers) is unfortunately often in the other camp.

Municipal engineers applying labour-only approaches regard the quality of
LBES methods inferior and would prefer to apply more equipment-intensive methods, which are less management intensive, if their budgets allowed.

**Fund allocation**

A big problem for the DPWH on all LBES works under administration is the fund release procedures of the Department of Budget Management (National Government). All infrastructure projects, in particular LBES projects, require that the implementing agency receives funding for the project in advance. Labourers of these projects are usually amongst the poorest of society and need to recieve their payment on time. Unfortunately, many LBES projects fail to receive their fund allocation on time.

Another problem is that LBES technology is more management intensive and requires more management resources. Similarly, more time is required for preliminary engineering and cost comparisons have to be made. However, the budget for management and for preliminary design are a fixed percentage of the total project cost.

**Standard specification**

The standard technical specifications used by all agencies are fairly technology neutral, with the exception of compaction and grading. However, biases have a major influence on the choice of technology.

The clients’ engineers and contractors both believe that the official regulations for Government Infrastructure Contracts (PD 1594) do not permit any deviation in work methods. This is not in fact the case.

None of the institutions have (indicative) cost data for different technologies to produce standard items of work, which would allow them to make quick cost-comparisons.

**Interests and social influence**

All LBES works are carried out under administration (force account). Many engineers and other staff of the agencies, indicate that politicians (governors and congressmen) try to influence them to contract the works to private sector which favours equipment-intensive technology.

Political leaders however, rely on technical experts for information regarding the feasibility of the technology. However, the technical staff hardly ever initiate discussions about the feasibility of LBES technology. If the technology is discussed it is on an ad hoc basis. Political leaders are therefore not informed about the technical, financial and socio-economic benefits of the technology and nor are the public.

Some political leaders, (vice) governors and mayors, see the benefit of using LBES technology as being a cheaper option enabling them to provide more infrastructure and create employment. This is viewed as an opportunity to gain votes.

If the governors and mayors are really in favour of LBES technology, they have the power to imbed it in their organisations, on condition that it will not result in more permanent staff or a reorganisation.

The contractors’ main objectives are to make profit and to sustain their business. As can be expected, contractors who have invested considerably in equipment are not in favour of LBES technology or technology neutral contract documents. They only see potential threats with regard to profit and market share. Those contractors who lease their equipment, perceive LBES technology and technology neutral contract documents as a great opportunity. Regular contractors do not try to influence the politicians or engineer offices with regard to technology choice.

**Information**

Information about LBES technology is scarce in the Philippines. The DPWH is the only organisation where documentation about the technology is widely available. The technology was once discussed at a seminar of the Philippines Institute of Civil Engineers, the best if not the only way of dissemination of information on technical developments. Unfortunately, the media never discusses the application of LBES technology and its characteristics.

**Concluding remarks**

The Philippine government has given high priority to rural employment creation. One obvious way in which this can be achieved is through infrastructure works. In addition, there is a knowledge base and some experience in the Philippines on labour-based methods. In principle therefore, there is a basis for the development of an employment-intensive investment programme in rural infrastructure.

The major constraints, however, fall into two categories. In the first place there is a general lack of understanding that labour-based technology can be technically and economically efficient. A programme of awareness raising targeted at political leaders is necessary to provide an enabling environment for the technology to be sympathetically assessed. Secondly, the technical staff of the local government units need to be exposed to the technology through applying the training material and guidelines that already exist. Indeed it would be essential that some part of the investment funds that will be allocated to employment-intensive programme were earmarked for training.
Appropriate technology for solid waste management / collection

By Manus Coffey, Consultant, Ireland

Often in developing countries technologies and equipment for the management and collection of solid waste from industrialized countries have been promoted, usually with aid funding, without full appreciation of the very different waste characteristics and local economic circumstances of these countries.

Refuse compaction vehicles, for example, designed for low density, non-acidic and non-abrasive waste in the more industrialized countries, may provide very costly, short-lived and inappropriate solutions in low- or middle-income countries where waste densities may be up to five times greater. Poorly designed hand or animal carts and hand tools, where the designer has had no direct experience of the conditions under which they will be used, put excessive burdens on the users leading to inefficient and costly systems. Local authority staff who lack knowledge and practical experience tend to rely on suppliers and salesmen’s advise, which results in the use of inappropriate equipment. For example, excessive loading heights on truck bodies will result in slow loading times and unhygienic conditions where waste falls back onto the workers’ heads during loading.

Factors to consider to improve speed and efficiency

Within the space of this short article it is not possible to cover all the factors effecting the choice of vehicle type and operating system, but a few of the fundamental principles which must be applied to any municipal waste management project include:

- The methods used for storing waste at the households will determine the loading speed of the vehicles, and hence the optimum number of workers for any vehicle and the number of vehicles required. Waste in plastic bags, for example, is quicker and easier to load than loose waste.
- If community waste compounds are used these must be designed for easy and fast unloading. Conventional concrete or brick compounds commonly found in developing countries can be very slow to

Refuse vehicles designed for low density waste in industrialised countries prove to be very costly, short lived and inappropriate. Equally, poorly designed solutions, where the designer lacks direct experience of conditions of use, leads to excessive user burdens, and inefficient and costly systems.
unload resulting in low collection vehicle efficiency, as there is only room for one person to work inside the compound at a time.

- The haul distance between the collection and discharge points will determine the most appropriate type of collection vehicle for any situation. For short distances a handcart may be appropriate or tricycle carts if the road surfaces are good. As haul distances increase consideration can be given to animal carts, tractors and trailers, small two axle (4x2) trucks or large three axle (6x4) trucks.

- Manually operated primary collection systems bringing waste to small transfer stations can be both cost effective and, if community-based or privatized, provide work for low-income people.

- Tractors and trailers can be cost effective where haul distances are no more than 10km. Different types of trailers can be made locally for waste collection or for picking up community containers.

- The load carrying capacity of the vehicle and the density of the waste will determine the choice of the optimum body capacity for any vehicle. The body size chosen should allow the vehicle to be loaded to its optimum capacity without overloading. The design of the body should allow for easy loading without the workers having to lift loads above their shoulder height and for easy discharge.

- In general, there is no logical reason for using compaction vehicles if the waste densities are more than 250 - 300 kg/m³.

- Where the waste has a high organic content, steel container systems can be very costly to operate unless they are emptied every day before the waste has time to decompose and form corrosive acids. Containers made from corrosion resisting steel such as CorTen, will cost more but will have many times the life of conventional steel containers with consequent cost savings.

- Specialized imported collection vehicles are seldom cost effective and can have lengthy breakdown times waiting for imported spare parts. The most appropriate truck for almost every developing country situation is a locally made non-compaction body on a truck chassis which is commonly available and has readily available spare parts and service.

- Commonly available multi-purpose truck bodies and trailers are not efficient for waste collection purposes, but relatively simple changes to these bodies can provide efficient systems.

- Most countries have the facilities to make suitable hand and animal carts, appropriate tractor-trailers or suitable truck bodies for efficient waste collection.

- Waste management experts should assist local manufacturers to adapt locally available equipment to provide efficient collection and waste transportation equipment.

### Waste collection where access is difficult

Cities of many of the developing countries have unplanned or "informal" housing areas (squatter settlements, shanty towns, bidonvilles, slums) where inhabitants do not pay city rates and receive little or no services from the municipal authorities. Access to many of these areas can be a problem with unpaved roads and narrow tracks between the houses. Often these areas are built on steep slopes, which have been rejected by the municipality for housing.

Although these areas generally produce only small per-capita amounts of waste, such wastes have a very high density. The waste from these areas does not usually contain hazardous materials such as heavy metals or clinical waste found in formal housing areas; but may contain significant proportions of human faeces which cause serious health hazards to the inhabitants. If uncollected, the waste becomes a breeding ground for insects and rodents, which are vectors for the spread of disease.

Very often the only, or best, solution to the solid waste problems of these areas is to encourage local community-based organizations to set up and provide a collection service. Where conventional handcarts are not able to travel efficiently, a single wheelbarrow with extended sides may be used to bring the wastes to a large community compound or containers for removal by the municipality. Alternatively, an informal disposal site may be developed in close proximity to the settlement.

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**Waste collection system for narrow street corners.**

Source: SEAM II Project, Egypt

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The author, Manus Coffey, is a design engineer and a waste management consultant working in developing countries. He has worked with local manufacturers in the provision of appropriate vehicles and equipment to the local authorities different countries. Such equipment has included handcarts, hand tools, tricycle carts, animal carts, special tractor trailers and tractor container systems, truck mounted refuse collection bodies and container systems, and specialised latrine emptying vehicles for countries in Africa, Asia, the Middle East and South America.

Email: manuscoffey@eircom.net
As the oldest UN agency, the ILO has amassed a tremendous amount of crisis response related experience from the period following the First World War, during the Great Depression of the 1930s, immediately before and after the Second World War and right through till today. In fact, ILO’s continued contributions to peace through promotion of employment and social justice were recognized by the award of the Nobel Peace Prize as far back as 1969.

Since then, ILO has responded to famines in Ethiopia and Sudan, the floods of Mozambique, assisted Central American countries in the aftermath of Hurricane Mitch, and intervened in many post-conflict countries in both Asia and Africa. The ILO has also been involved in programmes responding to the Asian financial crisis and worked in countries during crisis situations as they moved from centrally controlled to market economies and more democratic rule.

All of these responses sought to have employment creation issues at the centre of crisis response by the international community. The ILO employment focused responses have not however only addressed labour-based technologies (LBT) approaches to infrastructure planning, rehabilitation and development, but they have also addressed other important areas of employment creation and promotion. The ILO has also been at the centre of peace negotiations, as was the case in Guatemala.

ILO’s InFocus Programme on Crisis Response and Reconstruction

ILO’s InFocus Programme on Crisis Response and Reconstruction (IFP/CRISIS) was established in 1999 to:

- tackle the overall employment and other decent work challenges of crises,
- promote socio-economic reintegration of the crisis-affected groups, and the reconstruction of their communities,
- strengthen the capacity of ILO and its constituents to respond to crisis in a timely, coordinated, comprehensive and effective manner.

IFP/CRISIS responds according to an established set of criteria to certain country situations where there has been:

1. Armed conflict
2. Natural disaster
3. Financial and economic downturn
4. Difficult political and social transition.

LBT in infrastructure, rehabilitation and construction works do not, however, form part of each and every IFP/CRISIS response. Depending on crisis response assessments in the field and other circumstances, including donor preferences and overall priorities, response can just as well focus on employment creation from the point of view of revitalising employment services, encouraging skills development for employment, establishing employment policy areas, realizing local economic development, supporting micro-finance or introducing social protection and so on.
IFP/CRISIS always works in line with the specialists of the EMP/INVEST branch and in particular with ASIST-Africa and ASIST Asia-Pacific, the ILO field structure, in addition to setting out to influence major donor and development bank crisis response interventions. To this end advocacy is a very important part of the work of the unit, and it conducts regular special training for its key focal persons within the ILO. Already there is a useful set of tools together with supporting guidelines in various specialist areas available from the IFP/CRISIS resource centre in Geneva and from the web-site (www.ilo.org/crisis).

LBT works in the four ILO categories of crisis
In the case of ILO post conflict and post natural disaster responses, the rehabilitation and repairs of damaged infrastructure are a basic prerequisite for the overall reconstruction of an economy. Clearly not all of the emergency rehabilitation can be done by LBT methods. However, as much work as is feasible both technically and economically should be carried out using LBT methods. Likewise, the use of LBT methods may also be appropriate for the prevention or amelioration of the damage that results from natural disasters. Much of this involves such works as firebreaks to sandbagging for flood protection, which can be carried out with a minimum of equipment support. IFP/CRISIS is planning a new manual in 2002 that will address the use of “smart labour” techniques for such work.

Of the four categories of crisis referred above, the type of works involved in response to rehabilitation and construction of infrastructure damage and neglect arising out of armed conflict and natural disasters is very similar, although the techniques, challenges, and the locally available resources are probably quite different. The starting point for such works is a local level planning programme as developed by the ILO and promoted by ILO/ASIST. Without proper planning both at local and national level rehabilitation activities may well be at risk. However, reconstruction is not only about technical issues alone. A multi-disciplinary perspective is essential, especially an understanding of the socio-political reality. In situations where there is a need for immediate infrastructure rehabilitation and reconstruction action the approach is referred to as a “Programme to Policy Approach”.

In the case of financial and economic downturns and difficult political and social transitions, the challenge for IFP/CRISIS is quite different. From the outset, the most useful ILO impact will be on using these windows of opportunity to instigate a debate or effect a change of thinking on the choice of technology. Then continue with the introduction of new effective policies and programmes that encourage the wider and more efficient use of LBT works within the recurrent public investment programmes and/or those funded by loans from the major development banks. This is referred to as a “Policy to Programme Approach” and can be gradually introduced, as the stakeholders require. Although for new programmes, such as those of development banks, they should come into immediate effect as regular programmes are converted to more employment-friendly approaches.

So, for IFP Crisis there are two general approaches, which both involve programmes; one which has to have an emergency start up (without policy necessarily being be in place) and the other a more considered, gradual and transitional approach. Both programmes eventually involve the important area of policy review that, of course, from the ILO viewpoint is actually a primary consideration in the strategy for both types of intervention. The centrefold of this issue of the bulletin provides checklists for both approaches.

1 EMP/INVEST Employment-intensive Investment Branch
2 IFP/CRISIS Infocus Programme on Crisis Response and Reconstruction
3 Labour-based technologies is a structured method of providing or maintaining infrastructure to a specified standard, while optimizing the use of labour, and employing people with fair working conditions. The use of labour is supplemented with appropriate light equipment where necessary for reasons of quality or cost. The term incorporates the idea of optimising the mix of labour and equipment to produce a cost-effective result.
4 Currently for Somalia with other programmes already decentralised
5 Currently in Cambodia, Solomon Islands and Afghanistan
In the case of ILO post conflict and post natural disaster response, where the rehabilitation and repairs of damaged infrastructure are a basic prerequisite for the overall reconstruction of an economy the Programme to Policy Approach is adopted.

The same social and technical conditions which are needed for the introduction or strengthening of a conventional Employment-intensive Investment programme (EIIP) in non-crisis affected countries, where such programmes are appropriate, also apply to crisis response programme designs.

check the viability of the LBT approach

The first step in assessing the reconstruction needs of post-natural disaster or post-armed conflict would be to answer this question: Are LBT methods feasible in the milieu under consideration? This quick appraisal should focus on:

- Labour availability and costs versus alternative technologies.
- Technical scope of work and quality standards.
- Availability of complementary small equipment and local material resources.
- The time frame for the execution of the works should also be taken into consideration in order to reach the best compromise between cost effectiveness, labour intensity and acceptable duration of the works.

other important information that should be gathered includes:

- Are the government and the private sector well disposed towards the use of LBT works?
- What is the country experience in LBT works?
- What is the system of local level participatory planning priorities and programmes?
- What are the government contract procurement policies and practices (i.e. bidding procedures, etc.)?

When the sine qua none condition of the viability of LBT works is fulfilled, it is generally found that three main phases can be singled out when planning reconstruction after a natural disaster or post-conflict situation:

1. Emergency
2. Rehabilitation
3. Development

We will not consider the development phase in this review as it is well covered elsewhere in the available ILO EIIP literature. Its scope embraces the full institutionalisation agenda of the EIIP approach.

emergency phase check-list

1. A detailed assessment of the scope and content of an EIIP, the appropriate mix of LBT and equipment based works, all in the context of a broader employment programme able to be influenced by the ILO.
2. An overall assessment of damage should be carried out to determine:
   - What was the pre-crisis condition of the infrastructure?
   - Local planning needs
   - What is the extent of the damage?
   - What design and location factors contributed to the effects of the damage?
   - How is the damage impeding recovery?
   - How the damage may impede reconstruction?
3. The establishment of appropriate mechanisms for coordinating the planning and prioritising of infrastructure works in cooperation with the government (if operational), leading UN and other international agencies.
4. The promotion of international labour standards, in particular those dealing with basic human rights and cooperation with the ILO social partners.
5. Training needs and programmes for local technical and supervisory personnel in the basic skills necessary for LBT project/programme implementation.
6. Long-term thinking to the vision of the eventual implementation of a sector(s) wide EIIP, as a regular recurrent policy and programme of government.

rehabilitation phase check-list

1. Assist in the establishment of local and sectoral priorities in the target areas of the UN or international or national programmes, with a special emphasis on the employment issues.
2. Expand the scope of local level planning systems of the ILO and link them to national macro sectoral planning programmes from the centre.

economic circumstances in a country and the resultant serious impact on increased poverty and unemployment, require close review of employment policies and programmes, and recognition that market forces alone will not necessarily address these problems.

1. An overall review of the National Development Plan, the employment and technology policies on which it is based, the infrastructure programmes and budget involved (both from government, donors and development banks) and the progress being made against targets.

2. An overall review of the unemployment, poverty situation, trends, regional and district data and mapping of data.

3. An overall review of the infrastructure construction and maintenance needs and possibilities for using LBT methods without compromising on quality, technical standards or significantly on cost.

4. An overall review of available in-country resources necessary to undertake an expanded programme.

5. A study of how to achieve and maintain minimum technical standards and quality of completed works.

6. The need for policy and programme change and the isolation of particular sectoral works that must continue to be carried

**Approach 2:**

**Policy to programme approach**

This second approach is appropriate when a country is faced with a serious economic downturn. The Policy to Programme approach starts with recognition that changing social, political, financial and economic circumstances in a country and the resultant serious impact on increased poverty and unemployment, require close review of employment policies and programmes, and recognition that market forces alone will not necessarily address these problems.

**Policy and Planning Check-list**

1. An overall review of the National Development Plan, the employment and technology policies on which it is based, the infrastructure programmes and budget involved (both from government, donors and development banks) and the progress being made against targets.

2. An overall review of the unemployment, poverty situation, trends, regional and district data and mapping of data.

3. An overall review of the infrastructure construction and maintenance needs and possibilities for using LBT methods without compromising on quality, technical standards or significantly on cost.

4. An overall review of available in-country resources necessary to undertake an expanded programme.

5. A study of how to achieve and maintain minimum technical standards and quality of completed works.

6. The need for policy and programme change and the isolation of particular sectoral works that must continue to be carried
out in full or in part using existing equipment intensive methods.

7. The design and outline of alternative employment-intensive programmes, including an assessment of the extent of reorientation training needed for government technical and administrative staff to be able to cope.

8. The need for policy and regulatory change.

9. The need for capacity building and for ILO consultancy inputs at all levels.

10. Consideration of possible linkages to vocational training and small and medium enterprise development, as well as access to credit.

11. The need for additional government staff (LBT methods are also more management-intensive than equipment-based methods) and the broad outline of staff to be trained for a major programme.

12. The extent to which consultants and contractors will also require retraining and advisory support.

13. The incorporation of basic labour standards for workers to be engaged in these works.

14. The extent to which there will be regular dialogue with labour unions and employers organisations involved in the design and execution of the programmes.

15. The extent to which previous efforts with LBT programmes in the country have experienced problems and from which the proposed programme could learn.

**Programme implementation and monitoring check-list**

1. The extent to which existing construction and maintenance specifications and contract documentation will require to be modified.

2. The need for immediate selection of sectors to be included, detailed work-plans preparation and ongoing monitoring of the changes and results from the field.

3. The day-to-day business of running and monitoring of management-intensive LBT programmes.

4. Maintaining technical quality, timeliness, community participation (where planned), and cost-effectiveness of programmes and individual projects.

Because of the likely magnitude of the programmes potentially requiring support for change, the new approach will need to consider specific labour-based technology assessments for:

- Labour availability, suitability and costs analysed by province and district.
- The rural-urban emphasis of the programme.
- The receptiveness of the existing equipment-based contractors to change in technology.
- The length of employment contracts which can be offered so that the maximum number of persons benefit from the programme.
- The method of selection of the workforce.
- Payments and working conditions.
- The extent to which an opportunity for a holistic approach to employment generation exists in such areas as training for employment and small enterprise, and credit assistance.
- Research and development needs to help improve the programme.
- Specific monitoring and evaluation needs.
- Labour-based technology technical training and orientation.

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**Asian Financial Crisis and “Mega” EIIPs**

The Asian Financial crisis saw the creation of major employment programmes, often by non-technical ministries. These schemes introduced ‘overnight’ labour-intensive works programmes (labour, few tools and no equipment) with poor technical design, management, or supervision and a lack of concern or respect for the dignity of labour. This was opposed to labour-based technology (LBT) type programmes, as advocated by the ILO for the actual menu of works undertaken. Many of these schemes ended up totally discrediting LBT methods, because of the lack of the basics in labour productivity, quality assurance and poverty targeting of the programmes and activities.

By the onset of the Asian Financial Crisis, there had been a general decline in the use of LBT methods in many parts of the region following the golden years of the Asia ‘miracle’ which saw an acceleration in the use of equipment-based methods even in more remote areas where labour-based methods would have been more viable and affordable.

However, fortunately the Governments of Indonesia, Thailand and the Philippines, supported by the major Development Banks, recognised the need for these employment-generation programmes to also result in productive assets. They embarked on a policy using employment-intensive methods as a mainstay of their programmes of assisting those persons affected by the financial crisis. The ILO was requested to assist in the design and development of the above programmes.

In the case of Thailand, the Government targeted the creation of one million temporary new jobs and in the case of Indonesia the targets were as high as 3.9 million temporary jobs. Initially, these programmes were also Government-funded. The proposed scale and intensity of these large scale infrastructure works programmes represented a paradigm shift from that of contemporary EIIPs and immediately placed LBT technology right in the spot light and invited the ILO to immediately give far greater priority to support to these new programmes.

In providing the essential technical support to countries in Asia affected by the crisis, the ILO adapted a Policy to Programme approach summarised here in two check-lists. The results of the ILO work are still being measured and have contributed significantly to change for the better in terms of employment and technology choice.
The ILO is conducting a study on “Smart Labour in Crisis Response Infrastructure Works” with a view to producing a field manual for general use.

If you have any good reference or training materials, manuals, particular techniques developed for special applications, information on key organisations or individuals with relevant experience, please contact EIIP or the Infocus Programme on CRISIS through eiip@ilo.org or ifpcrisis@ilo.org.

Thank you for your kind contributions!

Countries where IFP/Crisis has responded to the aftermath of crisis since 1999.

Natural Disasters - Conflict Recovery
an enhanced role for labour-based approaches

- Do we use people effectively and safely?
- Do we have the optimum techniques to deal with fires, earthquakes, unstable structures?
- Can we quickly train office workers and local residents to be effective manual workers to dig trenches, lay pipes, build shelters?
- Do we know all the different tools and equipment that could easily be deployed to enhance workers capacities and which may make all the difference?
- Do we have all the source material that captures the experience of skilled construction workers and emergency teams over the years?

The ILO is conducting a study on “Smart Labour in Crisis Response Infrastructure Works” with a view to producing a field manual for general use.

If you have any good reference or training materials, manuals, particular techniques developed for special applications, information on key organisations or individuals with relevant experience, please contact EIIP or the Infocus Programme on CRISIS through eiip@ilo.org or ifpcrisis@ilo.org.

Thank you for your kind contributions!

LIST OF REFERENCES


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Website: http://www.ilo.org/employment/eiip
The latter half of 2001 really saw the start of this new phase of ASIST, with core support from Britain, Norway, Sweden and Denmark.

Whilst work continued in many of the previous areas, one major new thrust was the development of the umbrella strategy for the ILO Employment-Intensive Investment Programme (EIIP) and ASIST roles in urban interventions. Though this is covered in a separate article, it is worth identifying a few key points in this section.

Firstly, it was recognised that there are many actors in the urban sector. Building upon more than five years of ASIST-Africa works in urban settlements, we needed to be clear that we were not duplicating the role of others and would bring added value to their efforts. It was clear that with the expertise developed in employment-intensive infrastructure and services provision, operation and maintenance, the continued role of ASIST is focused upon the issue of maximising opportunities for poverty eradication through developing employment opportunities in the process of infrastructure development.

Secondly, it is very clear that urban works should not be considered outside the overall strategy of the Programme, but are really a specific sectoral aspect that needed to be addressed, to ensure that a holistic approach to employment intensive developments.

In conclusion, ASIST-Africa will continue with its work in accessibility planning, rural infrastructure and roads, but will also actively pursue opportunities to work with partners in the growing urban areas. Other areas of note over the past few months include:

• addressing targeted procurement issues and awareness raising in the trade unions in South Africa;

• a labour laws study in Botswana addressing the legal status, rights and obligations of casual workers employed in road maintenance; and

• the completion of the training materials for water and solid waste management under the Sustainable Lusaka Programme in Zambia.

In addition, there have been major moves towards improving and institutionalising the information services in Tanzania and elsewhere. Our web site www.iolo.org/asist is being redesigned so... watch this space!

The Nairobi office, under Stephen Muthua, continues to function well and is proving very effective in facilitating efforts in East Africa, particularly in the urban and road sectors. It seems there may be growing opportunities in other areas too.

Staff news

It is with very mixed feelings that we said farewell to Fatemeh Ali-Nejadfard, one of the longest serving members of the ASIST-Africa team with a record of over five and a half years. Fatemeh (also known as Naghmeh to her friends) has had a major impact on accessibility planning and the development of IRAP. More to the point she has been a popular tower of strength and an inspiration to the team. However, her move as the CTA for an International Programme for the Elimination of Child Labour (IPEC) timebound programme is more than challenging, and we know she will provide similar impact there and wish her every success and fulfillment. Indeed, there may be many ways in which we can collaborate so we may not be losing her completely.

Fortunately maintaining the gender balance, we also welcome Kelley Toole, who comes to us under the sponsorship of DFID from a engineering background that is quite varied but focused on community development and environmental issues. Her most recent assignment was with CARE in Lusaka, on an urban poverty eradication Programme. Welcome, Kelley!

Meet the team...
ASIST – Asia Pacific news

By John van Rijn and Chris Donnges, ASIST – Asia Pacific, Thailand

Since the last edition of ASIST bulletin (No. 12 September 2001) ASIST-Asia Pacific (AP) continued to provide technical advisory services, training and information on local level accessibility planning, labour-based technology, small contracting development and rural infrastructure maintenance systems in various countries in the region. The main countries of focus were Philippines, Indonesia, Thailand, Cambodia, Laos, Vietnam, India and Nepal.

The Philippines

In the Philippines, in line with its overall objective of influencing policy and investment strategy ASIST-AP has provided continued technical support to the nation-wide Integrated Rural Accessibility Planning (IRAP) programme which started in 2000. The main technical inputs are related to programme development and evaluation.

ASIST-AP will be assisting the Department of Interior and Local Government to prepare a source book on labour-based technology for Local Government Units (LGUs). This work will be undertaken as part of an AusAID grant to develop Labour-based (Equipment supported) Technology (LBES) in the Philippines.

ASIST-AP is being sole-sourced by the Asian Development Bank (ADB) to provide technical assistance to develop IRAP and LBES procedures as part of a large ADB funded rural infrastructure development project. The purpose would be to assist the Department of Agriculture, responsible for this project, to properly apply the different procedures and tools.

ASIST-AP has financed and implemented a study to assess the capacity of LGUs to identify, develop, implement and manage LBES projects. It also studied the constraints in the imbedding process of LBES technology. (See article page 11).

Indonesia

ASIST-AP has finalized a possible Labour-based Technology (LBT) programme for Indonesia. An associated Technical Assistance (TA) project document has been discussed with selected donors. These donors are Netherlands, AusAID, ADB and Department for International Development (DFID)(UK). ASIST-AP is now assisting the key ministries concerned with developing the project document into a strategy which different donors could support in different ways.

ASIST-AP has initiated a pilot IRAP project in two selected districts to support government’s recent efforts to decentralize the responsibilities for rural infrastructure development and maintenance to the local governments. This project is currently implemented in collaboration with the Gadja Madah University.

Thailand

Work in Thailand has involved the development of a manual for use in the training of Tambon leaders on local resource based rural infrastructure. The present government has placed emphasis on providing funds for infrastructure development at the village and district (Tambon) level. An earlier version of the manual was rewritten after participating in a number of training courses for local government technicians and a final version has been translated. A training course for instructors was conducted in December.

Cambodia

In Cambodia, ASIST-AP has continued to monitor progress and support the Sida financed UPSTREAM project in the fields of LBT, IRAP and small contractor development. The main activities included review of technical documents and advisory services.

Laos

ASIST-AP is presently, with financial support from ADB, assisting the Province of Houaphan to design two LBT roads (55km) and develop the local capacity to implement and administer LBT works. Just recently the ADB and Lao Government invited the ILO to participate in the formulation of a new smallholder project in the south west part of the country. ASIST-AP will assess the suitability for application of labour-based technology on the road works, and if required provide the technical assistance during implementation.

Vietnam

ASIST-AP received additional resources from ILO to initiate its technical collaboration with Vietnam. Two pilot activities were carried out to better understand the environment within which rural infrastructure is implemented in Vietnam, concentrating on local level planning and small-scale contracting.

Nepal

In Nepal, ASIST-AP followed up upon the joint DFID/ASIST-AP November 2000 workshop which had the objective to improve co-ordination in the rural road sector with a special emphasis on the district responsibilities and the role of DoLIDAR (Department of Local Infrastructure and Agricultural Roads). ASIST-AP developed a Memorandum of Understanding with DoLIDAR to assist the Department in four technical fields. The first pilot project demonstrating IRAP in four pilot districts and developing Nepal specific guidelines and training materials has started.

India

A pilot project, similar to that in Nepal has been developed in two states of India _ Orissa and Rajasthan _ where ASIST-AP will collaborate with the Orissa National Forum for Rural Transport and Development (NFRTD) and Rajasthan University (BITS). In addition, ASIST-AP supported a study looking into present and potential LBT investments at the local government level.

ASIST-AP has also participated, at the request of the Ministry of Rural Development, in a strategy workshop on the Pradan Mantri Gram Sadak Yojana (PMGSY) program. This is a major programme with the objective to connect all villages with a population of 500 inhabitants or more to existing road network by 2007. The program has an annual investment of USD 500 million.

China

In China, ASIST-AP has been requested to collaborate in implementing a study looking into the impacts of employment-intensive investments in the public sector.

Regional University Network

A major ASIST-AP activity is its support to the Regional University Network Asia-Pacific (RUNAP). This network will serve as a platform to discuss poverty and LBT, IRAP and small contractor development issues. ASIST-AP assisted RUNAP initially in developing its web page and establishing its network. The network should facilitate collaboration between different countries in research, technical assistance, curricula development and training capacity development.
Background – the urban crisis

We live in an urbanizing world. By 2006, for the first time in history, 50% of the earth’s population will live in urban areas. The fastest growth rate of urban populations is in developing countries where there is estimated to be more than 150,000 new urban residents per day. By 2015 more people in developing countries will live in urban than in rural areas.

Because of the rate of increase of urban populations, along with the lack of resources at local levels, urban local governments have not been able to provide services such as water, shelter or sanitation for the expanding urban population. As a result between 30% and 70% of the residents of cities in developing countries live in informal settlements. These settlements grow in marginal land, are often overcrowded and with little access to basic services. As a result, residents are exposed to many health risks, and have few opportunities to improve their lives. People in urban areas rely on cash incomes to access basic needs such as, water and shelter, but there is little opportunity for formal employment and conditions and security are poor in the informal sector. Because these settlements are often illegal or unrecognised, residents have poor representation in decision making. The increasing polarisation between rich and poor results in high crime levels and unrest.

Improving services in informal areas reduces money and time needed to access basic needs, improves health and increases income generating opportunities. Labour-based and community managed approaches are particularly applicable in these areas, as people are reliant on cash incomes and the congestion often makes equipment based approaches impractical. By involving communities in the planning, design, implementation, operation and maintenance of infrastructure, the resulting services become more cost effective and sustainable.

ASIST’s role in eradicating urban poverty

ASIST’s focus on employment and infrastructure provision means that it is in a unique position to contribute to urban poverty eradication.

When asked about their priorities for improving their area, a resident of a Mombasa slum replied (not verbatim): “You’re asking me what I need the most, and what I can afford for it! What I really need is a decent job. Then I won’t be concerned about these things, because then I could afford to ensure that I can get them all”. Source: Cyrus Njiru, WEDC, Loughborough, U.K.

This statement really strengthens the understanding of urban poverty, and poverty in general. It shows that whilst residents in informal settlements certainly appreciate improved services, a major issue for them is lack of employment opportunities.
Globally, it is estimated that USD 200 billion per year is invested in public investment programmes. Consequently, the employment potential in such investments is massive. Focus on employment-intensive approaches has been shown to have a major impact on poverty, and on the appropriateness and sustainability of the infrastructure and services provided through these investments. Much of these investments are in the growing urban environment.

There are many actors in the fields of community development and improvement in basic infrastructure and services. However, with its tripartite base and mandated focus upon labour issues, combined with the extensive experience in employment-intensive infrastructure development, the ILO through the Employment-Intensive Investment Programme (EIIP) and the ASIST Programmes, is uniquely placed to provide the added value to any interventions addressing sustainable service provision with a focus on poverty eradication.

Many of ASIST’s support roles in rural areas are applicable to urban areas, for example:

- Developing pro-poor contracting, procurement and funding mechanisms and documentation
- Developing community level negotiation skills
- Integrated and community focused planning tools, the highly successful “Integrated Rural Accessibility Planning” (IRAP) Tool
- Working with governments in developing pro-employment policies for infrastructure works
- Working with training institutions in developing labour-based infrastructure courses.

But urban areas also offer different challenges and opportunities. ASIST-Africa has been addressing the specific urban context through a number of activities, some of which are outlined below:

**Urban development projects**

A number of projects have been designed and implemented in partnership with others, such as United Nations Development Programme (UNDP), United Nations Volunteers (UNV) and United Nations Centre for Human Settlement (UNCHS) Habitat:

- Kalerwe Community Based Drainage Upgrading Project in Kampala, Uganda
- Community Based Infrastructure Development in Hanna Nassif, Dar es Salaam, Tanzania
- Maseru Urban Upgrading Project, Lesotho

These projects have provided the opportunity to:

- develop and test approaches including the community contracting system, for later scale-up and institutionalisation;
- develop the capacity of local authorities and Community-based Organisations (CBO’s);
- improve linkages between local government, community groups and the private sector;
- provide demonstrations to policy makers and other partners to advocate for labour-based approaches
- tackle the problems of urban poverty directly through creating employment and through planning, implementing, operating and maintaining appropriate, sustainable infrastructure.

Residents stated that improved access and drainage led to increased economic activity in a healthier environment.

...By 2006, for the first time in history, 50% of the earth’s population will live in urban areas. The fastest growth rate of urban populations is in developing countries where there is estimated to be more than 150,000 new urban residents per day. By 2015 more people in developing countries will live in urban than in rural areas.
Some key achievements

- In Kalerwe, over 14,000 worker days (skilled and unskilled) were generated. The improved drainage meant that the incidence of waterborne disease was reduced within the settlement and residents developed an increased variety of economic activities. Community contracting ensured that the community played a leading role throughout the process.
- In Hanna Nassif, over 54,000 worker days were generated in the construction of community identified priority storm drains, roads and footpaths. A community-based maintenance system was set up to ensure the sustainability of the new infrastructure. By working closely with partners, city council and CBO capacity to implement future similar community works was built.

Technical knowledge and skills development for the urban sector

To improve knowledge and skills, ASIST-Africa assisted training institutions in developing labour-based community managed upgrading courses.

- **Urban Planners Course**
  This course aims to train engineers and town planners to work with communities to find sustainable solutions to problems in low-income settlements. The course was developed in partnership with the University College of Land and Architectural Studies (UCLAS) and has been run once on a cost recovery basis with 18 participants from five African countries. Final training material, incorporating feedback from the pilot course, is currently in print and expected to be available by April 2002.

- **Urban Site Supervisors Course**
  This course aims to train site supervisors to supervise and execute urban infrastructure works using labour-based and community-managed approaches. The course was developed in partnership with Kisii Training Centre (KTC) and the Kenya Water Institute (KEWI), both in Kenya. The course manuals and handbook are currently in print and expected to be available by April 2002.

- **Training package in solid waste and water management**
  Developed in collaboration with ILO’s Start and Improve Your Business (SIYB) programme for the Sustainable Lusaka Programme. The aim is to train entrepreneurs in business and technical skills related to starting and operating solid waste or water vending enterprises.

Development of standards and procedures applicable to the urban sector

ASIST-Africa has contributed towards the development of:

- The Urban Employment Charter developed for Habitat II and adopted by the ILO in December 1995
- Urban Employment Guidelines - these guidelines were developed to assist social partners, local authorities and informal sector organisations in the design and implementation of informal sector and infrastructure development programmes, with a view to improving productivity and working conditions in the urban informal economy.

Guidelines on community contracting

Community contracting is an operational tool to ensure that communities are in the driving seat of development planning, implementation, operation and maintenance, through organisation and negotiation. Two publications have been published: “Community Contracts in urban infrastructure works - Practical Lessons from Experience” and “Organisation, negotiation and contracting in development programmes and projects - A study of current practice at the community level”. Both of these are available from ASIST and ILO Headquarters.

Strategy for the future

The need for both improved infrastructure and services and increased decent employment opportunities in urban areas is clear. With ASIST’s unique position in being able to address both of these issues, through supporting the use of labour-based and community-managed infrastructure investment, the importance of having a coherent strategy in urban areas was recognised by EIIP and ASIST teams.

In an effort to maximise the benefits of our urban interventions, members of the ASIST teams from both Africa and Asia-Pacific met with colleagues from EIIP in Geneva in January 2002 to develop an umbrella strategy to guide future interventions, considering the overall objectives of the EIIP.

The umbrella strategy is within the overall strategies of EIIP and ASIST Programmes but considers the EIIP objectives specific to the urban context.

Key concepts include:

- Focus on increased employment and improved infrastructure through use of labour-based approaches to community driven infrastructure investments.
- Building on our experience in urban and rural contexts.
- Identifying opportunities for partnerships.

The next steps

The umbrella strategy to guide EIIP/ASIST’s urban work is being developed for publication by May 2002. Regional field offices will use this to guide local situation analyses for identification of future priorities and opportunities for intervention.

We would welcome comments regarding these developments, and particularly to hear from those active in the urban environment to explore the possibilities for collaboration and mutual added value.

Check out ASIST’s web site for more information on past and current activities, and the development and implementation of the strategy, or contact our offices.
Access and Rural Employment Programme News from Africa

By Fatemeh Ali-Nejadfard, Formerly ASIST – Africa, Zimbabwe

Malawi

To contribute to sustainability of activities accomplished in Malawi in previous years, a one-week training workshop on Integrated Rural Accessibility Planning (IRAP) was held in Lilongwe in January 2001. This workshop aimed to train district planners and relevant officials in several key ministries on major issues regarding rural accessibility and its integration into the local level planning system. The trainees were familiarised on how to plan, implement and allocate scarce resources to interventions that would improve access of rural population to productive resources.

In addition, a one day workshop was held in Lilongwe, August 2001, with 23 participants from different development organisations, inclusive of World Food Programme, United Nations Children’s Fund (UNICEF), Malawi Social Action Fund (MASAF), Action Aid, United States Agency for International Development (USAID), CARE, University of Malawi-Bunda College of Agriculture, World Vision, key staff of the Department of the Local Government, Ministry of Planning and Finance. The main purpose of the workshop was to co-ordinate local level planning practices by various development organizations, focusing on rural access problems and the role of local level planning in addressing some of those problems. The issue was put within the context of decentralization, and the District Development Planning Structure within which various donors and development organisations were to work and co-ordinate their development activities. It was encouraging to note that with a minimum adjustment various planning tools could complement each other without any duplication of efforts. The group discussions concluded with series of recommendations and proposals for the way forward. This included formation of a Local Level Planning Forum that would meet on regular basis to co-ordinate their planning activities.

Zimbabwe

A one-week training workshop was held in 2001 for district and provincial engineers on construction of suspension footbridges, an important rural access intervention. This workshop was a joint collaboration venture between ASIST-Africa and the Department of Roads, Bridges Section, in the Ministry of
Transport and Communication. The objective of the workshop was to enhance the technical capacity at national, provincial and district levels on construction of footbridges.

The promotion of footbridges, one of the appropriate access interventions to increase mobility and accessibility in rural areas, is gaining in popularity. A growing number of Rural District Councils have shown interest in trying this approach to local investment planning. It is evident that this requires more capacity building.

ASIST-Africa continued its policy dialogue with the Government to promote accessibility planning and the implementation of access interventions. The Programme is also exploring new ways with local agencies and international donors to broaden the base for appropriate access interventions at local levels.

In 2001 ASIST's technical assistance to the Rural District Councils of Chipinge, Rushinga and Zaka for appropriate access interventions came to an end. The many valuable experiences and lessons learned from these projects sponsored by the Swedish International Development Cooperation Agency (Sida), are documented in a series of reports that are available from the ASIST Harare office.

Uganda

Following the previous initiatives with the Government on the application of IRAP, a one-week workshop on IRAP was held in July-August 2001 in Jinja for District Planners. This formed part of a process to integrate the IRAP planning tool into the local level planning system in Uganda. The objectives of the workshop included: a) familiarizing District Planners with the IRAP tool; b) discussing the integration of IRAP into local level planning structure at different levels; c) assessing the challenges and constraints regarding integration of IRAP into the local level planning system and d) identifying possible solutions to potential constraints regarding integration of IRAP.

This workshop was a joint collaboration between the Ministry of Local Government and ASIST to build the local capacity to improve access to productive resources in rural areas through improved planning and implementation of access interventions. The workshop also provided an opportunity to collaborate with the National Forum Group (NFG) in Kampala, and FABIO (an NGO – First African Bicycle Information Office) whose works are complementary to ASIST programme activities. Follow-up actions on the recommendations of the workshop are currently being discussed with the Government.

Ethiopia

ASIST together with the ILO Eastern Africa Multidisciplinary Advisory Team (EAMAT) based in Addis Ababa, is exploring with the Government of Ethiopia (GoET) and Irish Aid areas of collaboration in the implementation of Ethiopian Rural Travel and Transport Policy (ERTTP) Programme. Two potential areas for collaboration have been identified as: a) ILO’s technical inputs in the development of the planned ERTTP guideline and manuals, which include local level planning guidelines for rural accessibility and b) ILO’s technical inputs into relevant training courses.

Initial technical inputs have already been provided to the ERTTP consultants who are currently working on development of ERTTP guidelines and manuals.

Earth Report V – The Long Walk Video

This new video on rural travel and transport in Sub-Saharan Africa is a joint effort of ASIST-Africa and the Rural Travel and Transport Programme (RTTP) component of the World Bank, Sub-Saharan Africa Transport Programme (SSATP). The video, with case studies from Senegal, Guinea, Malawi and Tanzania, is aimed at raising awareness of the problems of rural access in Sub-Saharan Africa, and showing how these problems can be addressed through community participation, appropriate planning and various access interventions. The video was produced by the Television Trust for the Environment (TVE) in UK with funding from DFID-UK, and technical inputs from ASIST and RTTP of the World Bank.

The video is available from TVE, UK. Email: tve-dist@tve.org.uk

EIIP News

By Terje Tessem, ILO / EIIP, Switzerland

The Employment-Intensive Investment Programme (EIIP) team in Latin America has recently been strengthened with the arrival of Serge Cartier van Dissel in the ILO Regional Office in Lima, Peru. Together with, Alessandra Molz also in Peru, and Raul Fajardo in Nicaragua, they form the start of an expanding EIIP force in the region. In addition to technical assistance and training, a lot of attention is currently being focused on the translation to Spanish and adaptation of relevant publications to the Latin American context, and also the publication of regional experiences. More detailed information on Latin American activities will soon be available on the EIIP website. You should also expect to see further contributions in the bulletin from the region.

Publication and documentation are important elements of the preparedness for the policy work of the EIIP. In partnership with ASIST, numerous publications have been prepared to enhance the work of the advisers and trainers. The details of these publications are available in the bibliographic database, ASISTDOC, and the key publications are listed in the ASIST Source book. EIIP is now contributing to the ASISTDOC bibliographic database, which is available online on the ASIST web site under: http://www.ilo.org/assit

A recent contribution to the documentation work is the translation and adaptation to French of most of the educational and training material developed for the civil engineering works in rural and urban areas, including private sector and community-based development. This comprises about 4000 pages when printed, and will only be available on CD for reproduction by the users.

EIIP is working with the InFocus Programme on CRISIS to develop a publication on “Smart Labour” focusing on effective and optimal use of labour, tools and equipment in crisis response following natural disaster or conflict situations.
# Training Diary 2002

## Courses

### KISII TRAINING CENTRE (KTC), KISII, KENYA

#### Supervising labour-based contracts

- **Date:** 4th - 30th March 2002
- **Venue:** KTC, Kisii, Kenya
- **Fees:** US$ 4,200 (covers tuition, field practicals, course materials, transport during the course, safe travel insurance, accommodation and meals)
- **Details:** Contract supervisors who are engineers or senior technicians of labour-based road construction and maintenance projects

#### Site supervisors course in labour-based and community-managed upgrading of urban low income settlements

- **Date:** TBA
- **Venue:** KTC, Kisii, Kenya
- **Fees:** TBA
- **Details:** Site supervisors from communities, municipalities and contractors

#### International course in labour-based road construction and maintenance

- **Date:** 7th October - 16th November 2002
- **Venue:** KTC, Kisii, Kenya
- **Fees:** US$5900
- **Details:** For practitioners of labour-based roadworks (should have a university degree)

**Contact:** The Resident Instructor, Kisii Training Centre (KTC), PO Box 2254, Kisii, Kenya. Tel: +254-381-30699 or Tel/Fax: +254-381-21634. Email: courses@kihbt-ktc.com

## Technical Committee Meetings

### C3 Committee—Technological exchanges and development; C20 Committee—Appropriate development

- **Date:** May 16th - 17th, 2002
- **Venue:** Hotel Hilton Madagascar, Antananarivo
- **Details:** The purposes of the meeting is to promote the means and infrastructure of rural transport (roads, tracks and paths) by illustrating their impact on economic and social development and on poverty reduction.

**Contact:** President of the Organising Committee, Rajaonarison Claude Roger, Director of Land Transport, Ministry of Transport and the Meteorology, 11 Antananarivo, Madagascar. Tel: + 261-20-22-240-06 or + 261-33-11-392-56; Fax + 261-20-22-240-01 or 22-643-47. E-mail: univers.com@dts.mg

## Seminars

### WORLD ROAD ASSOCIATION (PIARC)

#### International seminar

**Date:** May 14th - 15th, 2002

**Venue:** Hotel Hilton Madagascar, Antananarivo

#### Rural transport — Key element of development

**Date:** May 14th - 15th, 2002

**Venue:** Hotel Hilton Madagascar, Antananarivo

**Contact:** Atanasio Mugunhe, Director of Regional Roads, Avenida de Mozambique no 1225, Caixa Postal 1405, Maputo, Mozambique. Tel: +258 1 475 864; Fax: +258 1 475 863.

### NATIONAL ROADS ADMINISTRATION, MOZAMBIQUE IN COLLABORATION WITH ILO/ASIST

#### Ninth Regional Seminar for Labour-based Practitioners: Towards appropriate engineering practices and an enabling environment

**Dates:** 19th - 24th May 2002

**Venue:** Maputo, Mozambique

**Cost:** Before February 1st 2002 - US$480; After February 1st 2002 - US$580. For Mozambique citizens US$400. Includes participation in all sessions and site visits, travel insurance within Mozambique, copies of seminar papers, proceedings, lunches and refreshments, reception and farewell dinner, and airport transfers. Excludes international travel, hotel accommodation, breakfast and evening meals.

**Contact:** Atanasio Mugunhe, Director of Regional Roads, Avenida de Mozambique no 1225, Caixa Postal 1405, Maputo, Mozambique. Tel: +258 1 475 864; Fax: +258 1 475 863.

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COMMUNITY CONTRACTS in urban infrastructure works

Practical lessons from experience

Jane Tournée and Wilma van Esch


This reprinted working paper addresses the development and use of community contracts for infrastructure provision and upgrading in unplanned urban settlements. Many of the concepts presented in this paper may be applicable to rural programmes, however, the object is to address the special conditions related to the use of community contracts for urban infrastructure works. The paper is based primarily on experience gained and lessons learned from two pilot projects in Hanna Nassif in Dar es Salaam, Tanzania and Kalerwe in Kampala, Uganda. The paper provides interested parties, in particular field workers, project managers, technicians and community animators with information on the practical application of community contracts for the execution of infrastructure works in urban low-income and/or unplanned settlements. Issues addressed include, institu-
tional set-up in community contracting, the community as contracting authority and contractor, type of contracts, payment, profit, role of the municipality and of technical assistance. It presents step-by-step guidelines on the setting up of a community contracting system.

ORGANISATION, NEGOTIATION AND CONTRACTING IN DEVELOPMENT PROGRAMMES AND PROJECTS
A study of current practice at the community level
Peter Oakley

In recognising the need to extend the fundamental principles of organisation and negotiation outside the “formal” wage sector, to the informal and weakly organised rural and urban sectors the ILO’s Employment-Intensive Investment Programme (EIIP) commissioned this study to provide insights to contracting, organisation and innovative forms of collective bargaining at community level in a number of developing countries in Africa, Asia and Latin America. The overall evidence from the case studies is positive in terms of some of the immediate benefits that membership of a community contract group can bring to the poor. The study details the effects that involvement in contract work can have on broader community involvement, despite the many local factors which can influence or even deter this involvement.

FOOTPATHS AND TRACKS
A field manual for their construction and improvement
ILO/ASIST; IT Transport 2002. 110pp

Simple improvements to paths and tracks can often bring about substantial benefits to communities by making the paths and tracks safer and easier to use. The manual presents practical measures that can be taken to improve or upgrade paths and tracks in developing countries. A number of projects have produced their own manuals to guide field workers. This manual drawn on this experience to provide a more generally available source for guidance on improving paths and tracks. The main aim of this manual is to provide guidelines to engineers and technicians who are providing technical assistance to communities in construction or improvement of footpaths.

The manual is being developed by IT Transport in collaboration with ILO/ASIST and will be available from May 2002.

THE WORK OF GIANTS
Rebuilding Cambodia
B. Wenk and N. Rain (Photography). 2002. ILO, Bangkok


While many intergovernmental and non-governmental organizations subsequently answered the call to contribute to the reconstruction of Cambodia, and the restoration of the symbolic site of Angkor, this book deliberately focuses on the work of a single one: the International Labour Organization (ILO). In post-conflict Cambodia, the ILO has found ways to generate sustainable employment – which the people ardently desire – while rebuilding infrastructure and exemplifying the international labour standards for which the organisation stands. It has created millions of days of paid employment, given training in a host of trades, set up a thriving micro-credit institution and built rural roads and bridges.

In the Northwestern Province of Siem Reap, which paid so stiff a tribute to the Khmers Rouges, the ILO was instrumental in the clearing of jungle growth and debris surrounding the monuments of Angkor. With the return of political stability to Cambodia, it is becoming increasingly plain how important the site of Angkor is to economic growth in the country.

Though widely known and respected among the people of Cambodia, the ILO’s work has remained surprisingly discreet. In many respects, this is as it should be given the Organisation’s commitment to helping workers, employers and governments that are its members to help themselves. What matters is not what an international organisation can do, but what the people do.
Thanks to all of you who responded to the ASIST Rural Infrastructure Information Needs Survey. The survey revealed information needs in the various sectors, and provided an indication of the availability level. In addition, it provided valuable insight into your information sources and your preferred medium for receiving information. The information you have provided us will be valuable in planning our collection development and dissemination strategies.

Here’s a snapshot of the main findings:

**Information needs**

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**Availability of Information**

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**Medium:** The preferred medium for receiving information remains print with 30% of the respondents, followed closely by CD-ROM 29%, email 26% and Internet 15%. The preference for digital media is substantial with 70% of the respondents indicating this as one of preferred mediums.

**Sources:** The most common sources of information were identified as relevant technical government ministry department libraries and documentation centres, the ASIST Programme, on-going programmes/projects in-country, universities and the Internet. The ILO, World Bank, Water, Engineering and Development Centre (WEDC), Department for Infrastructural Development (DFID), International Forum for Rural Transport and Development (IFRTD) were also listed as sources.

**Bringing information closer to you**

During this phase of the ASIST Africa Programme we intend to build up the information resources at national level, and are identifying suitable local partner institutions to work with. We are currently working with the Intermediate Development Technology Group (ITDG) - Eastern Africa Regional Office in Nairobi, Kenya, where ASIST has established a liaison office and a core collection of publications. In Tanzania, we are working with the Ministry of Works, Aproprate Technology Unit to establish a Labour-based Technology Documentation Centre. The goal of this initiative is to ensure that key publications on and related to employment-intensive infrastructure works are available locally.

If you or your organisation are interested in collaborating in this initiative please let us know.

**Digital dissemination**

We are actively building up our digital database of full text documents that can be quickly and readily disseminated on diskette, CD-ROM or via email and the Internet. If you have relevant documents in digital format please send them to us.

We are continually improving our website – and have recently given it a facelift! Do check it out at [http://www.ilo.org/asist](http://www.ilo.org/asist) We are also increasing the number of digital full-text documents available online. You can download a number of these in PDF format.

Our bibliographic database, ASIST-DOC, is available for browsing on our website and document orders can be placed online. You can also download the database for use on your own computer. The database is still available on diskette.

We realise that not all of you are able to access the Internet – so print still remains one of the key media for dissemination of information.

Please also fill in the reader survey form enclosed to help improve our services and to ensure you continue to receive the Bulletin!


Dear Reader

We would like to encourage you to write to us to express your views and share your experiences on issues on and related to employment-intensive infrastructure works and accessibility planning. This page will be dedicated to publishing your letters. We would really like to hear from you—so please do feel free to write! To kick this page off were publishing two letters that we received recently that we felt must be shared albeit from the same person—Thanks Mathew Kibe! - Editor

Kenyan member of parliament praises community initiative

The Member of Parliament (MP) for Embakasi, Mr. David Mwenje recently singled out for special praise a Nairobi community-based organization (CBO), Welfare Advisory Committee, (WAC) for their ‘excellent’ work in upgrading a section of a road in their area of residence. Said he “this is an excellent piece of work. I wish all of us were involved in this kind of work in our respective places of residence”

The MP happened to be in Dandora Phase 5 to attend a funeral of one of his supporter. Walking along this road (by chance … there are many roads in the area) he was struck by its high standard of construction and asked, “who did this good job?” As happens always one loudmouth among the people, who usually trail the MP, promptly answered, “Bwana mheshimiwa ni sisi tulijitolea ili kuleta maendeleo katika eneo lako!” (Honourable MP, it is we who volunteered to help you in the development of this area). This however was just to get the attention of the MP, as he had never in fact been involved.

But just by coincidence again, a woman member of the Phase 5 CBO happened to be in the crowd. She stood her ground saying, “Who are you to say that it was you? You were nowhere to be seen when the CBO members toiled under the hot sun—please shut up and ask me about it!” The fellow went cold! The lady then explained that actually it was the CBO, in collaboration with the ILO/ASIST and Kenya Institute for Highways and Building Technology (KIHABT), an institute that offers training in labour-based infrastructure development. She told the MP that the community was proud to have done so much, largely on voluntary basis and wished the MP could support initiatives like these in future.

The place of labour-based technology in infrastructure development

Recently a lady who runs a shop in one of the slums around Dandora, Nairobi told me of an incident that left my mind thinking hard and long about the potential for labour-based approaches in upgrading our infrastructure.

She told me about two strong, able-bodied gentlemen enthusiastic about work. The gentlemen told her that they were desperate for money to feed their families, but had no way of earning it! They pleaded with her “Mama Lucy please give us any work to do, and at the end of the day, just give each of us two packets of maize flour to go home with”. The current price of a packet of maize flour is about 70 Kenya Shillings (KShs) (about one US dollar!). So what each of them was asking for, was about KShs 140 (less than two dollars).

What this incident demonstrates is that a lot can be achieved with the use of very little resources.

I think the tragedy with Kenya is that as a country we are bankrupt of ideas on how to mobilize and use the vast resources that are at our disposal. One of the resources that we have in abundance is people … labour. We have so much of it, yet we use so little of it. There is so much to be done; yet we do not know how to use the excess labour to do it. Who will save us? Who will invent a formula where the millions of unemployed people can do the vast amount of work that needs to be done? A good example where the teeming unemployed labour could be used is in improving our dilapidated infrastructure. Incidentally, the very dilapidation of our roads also leads to so much loss of revenue (which we desperately need).

I recently came face-to-face with a situation where we lose so much revenue because of poor infrastructure. This was in Kinangop, one of Kenya’s most productive agricultural areas. A farmer had milked his cows that morning and brought the milk in several huge cans to the roadside for onward transportation to Nairobi. Because the rains had made the roads impassable the collection trucks that transport the milk did not come. The farmer was on the road for the most part of the day. By about two o’clock his cows were mooing in discomfort because they had more milk and were due for milking. So what the farmer did was to empty the cans of milk on the road so that the same cans could be used for fresh milk!

When I thought about how much people pay for milk in Nairobi and other urban centres, and also about the poverty of farmers in Kenya, I could hardly suppress my tears!

Mathew Kibe, Welfare Advisory Committee (WAC), Kenya
The Skills Course for Urban Site Supervisors in Infrastructure Upgrading was successfully piloted 13-31 August 2001 in Nairobi, Kenya. This course is the second part of the Urban Site Supervisors Course and follows the Basic Course that was held in Nairobi in November 2000. The Basic Course sensitised participants on attitudes towards community participation and labour-based approaches and equipped them with basic skills and knowledge in supervision of urban upgrading works. The objective of the Skills Course is to equip site supervisors with knowledge and practical skills to supervise and execute urban infrastructure works using labour-based and community managed approaches.

The Skills Course was conducted through the joint effort of the Kisii Training Centre (KTC) under Ministry of Roads and Public Works and Kenya Water Institute (KEWI) under Ministry of Environment and Natural Resources with assistance from ASIST – Africa. It proved to be a very good collaboration between the two institutions KTC and KEWI, representing two different Ministries in Kenya. The participants consisted of a heterogeneous group of supervisors, technicians and municipals engineers. Course participants judged the course to be very relevant for their work and it met their expectations.

The course was a balanced mix of theory and practical exercises on different sites and included:

- the construction of a short stretch of road, 135m, together with a community-based organisation (CBO) in Dandora Area V, Nairobi;
- a visit to a garbage recycling self help group to view different ways to minimize and utilise solid waste;
- working on a waterworks site of a CBO water project in Kibera, where the participants connected a water pipe to a water tank;
- working with a CBO in Kiambu District to connect a toilet block constructed by the CBO to the sewerage line.

Ideally the break between the Basic and the Skills Course should be no longer than three months to maximize on the knowledge gained from the Basic Course and ensure its application in the Skills Course. Beyond three months there is also the risk that participants forget what they have learnt especially if it is not put into practice. This was not possible for logistical reasons. ASIST – Africa has been responsible for developing the course and the course material in collaboration with KTC. The course material for both the Basic and the Skills Course is now being revised after the pilot training and will be published in early 2002. Although the course has been developed for the Kenya context it is hoped that, with minor adaptations, it could be used for training elsewhere.
Training for sustainable infrastructure development in Thailand

By Dr. Aniruth Thongchai, Chang Mai University and Paul Munters, ASIST – Asia Pacific, Thailand

Background

In January 2001, the Technical Training Institute (TTI) of the Public Works Department (PWD), Ministry of Interior (MOI), Thailand, started a two year training program for all technicians of the 6,747 local administrative offices of the new governance structure, the Tambon Administrative Offices (TAO). ASIST-AP developed a training aid: “Guideline for local planning, appropriate technology and employment for community development in the Kingdom of Thailand.” This guideline was supplemented by Thai re-runs of “Training modules on labour-based road construction and maintenance” on video compact disk (VCD).

On the basis of an assessment of the first cluster of training sessions, a completely revised second edition of the guidelines was developed in 2001, building on two elementary concepts in sustainable rural infrastructure development viz. local planning and labour-based technology.

However, as full comprehension of the concepts by the Tambon Administrative Technicians relies on proper training by updated trainers, a one-day refresher course was conducted on December 21st, 2001 for the 30 PWD provincial officers that were previously involved in the training of TAO technicians.

ASIST-AP engaged two national consultants for this purpose, Assistant Professor Narong Luengbootnak (Khon Kaen University) who covered Local Level Planning, and Dr. Aniruth Thongchai (Chang Mai University) who covered labour-based technology. A questionnaire sheet was issued to each participant to obtain feedback. This revealed that both local level planning and small scale contracting were seen as key for the future development of the TAO.

Other developments

In addition to the above, the consultants also performed some research into the newly instituted Ninth National Development Plan (2001). This plan aims to reduce poverty to less than 10% in five years, promote local development and create 300,000 jobs and new jobs annually. With the process of decentralization and capacity building being accelerated, the TAO would seem to be the obvious focal point of the National Development Plan. Considerations should therefore be given to developing the capacity at TAO level to effectively apply local level planning, labour-based technology, small scale contracting and infrastructure maintenance strategies.

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Since the PWD has been and will continue providing technical advice to the TAO for some time in the future, a series of meetings with key persons within PWD was set up. The objective of these meetings was to find out whether and how PWD can be supported by ASIST-AP in their role of technical advisor to the TAO.

The Thai government departmental structure is presently in the process of reorganization. Under the new structure, PWD will no longer be responsible for road construction in rural areas and the TTI which will still be part of PWD new structure will no longer be giving training in road construction. However, it will still be conducting technical training courses for engineers and technicians of the Ministry of Interior, including the TAO technicians.

In October 2001, the cabinet approved a framework for a social work program to be part of the economic stimulation budget framework for the year 2002.

PWD has submitted projects on reinforced concrete road construction adopting labour-based technology in village areas. The projects were approved in principle. But more importantly, the projects have to be proposed and planned by the benefiting community organizations or the community organization in cooperation with the TAO. Implementation also has to be the responsibility of the community organization or the community in cooperation with TAO, while the PWD facilitate and provide technical advice.

This setup opens a new dimension for possible ILO involvement. It can be anticipated that a large number of communities will be working in cooperation with their TAO to prepare local development plans and identify employment generating infrastructure projects according to the economic stimulation budgeting guidelines. With the ILO expertise in this area, a selected number of communities could be assisted to come up with suitable projects acceptable by the National Economic and Social Development Board (NESDB) project reviewing committee. The success of these selected communities can then be replicated or used as development models for other communities and thus significant impact on employment generation could be created.
Labour-Intensive Rural Roads Maintenance Programme (LIRRMP)

Northern Province, South Africa

By Jon Hongve, Northern Province, South Africa

This programme is being implemented over a three-year period through the Northern Province Roads Agency (NPRA). It is aimed at rehabilitating and maintaining gravel roads in the province using employment-friendly methods of work and executed through small emerging contractors. The programme was conceived by the Provincial Government as a flagship programme to promote the development goals of the province. Initially the programme is being implemented at provincial level, with a clear objective that the technology must be accepted and implemented at district and municipality level where the major market would be.

The programme aims to contribute to the adoption of common standards at the national, provincial and local levels of government and to the implementation of similar large-scale programmes in other provinces. Apart from the provision and maintenance of rural road infrastructure, the programme hopes to address historical social imbalances by creation of opportunities for the previously disadvantaged segments of the population. Great emphasis is, therefore, put on adhering to the South African social transformation agenda.

One of the challenges is to establish the programme within the South African labour, legislative and economic context. As statutory minimum labour wages are considerably higher in South Africa than in many African countries where such programmes have been implemented before, the programme will, at least initially, operate under the Code of Good Practice for Special Public Works Programmes which allows for negotiated wages below the statutory minimum. Training of the labourers, ranging from life skills training to adult education (ABET), will then have to be provided to compensate for the lower wages.

The United Kingdom, Department for International Development–South Africa (DFID-SA) has entered into agreement with ILO for provision of technical assistance and training to the programme. The training services will be carried out by the Lesotho Department of Rural Roads through a separate agreement with the ILO.

Twenty-four contracting firms and six consulting firms from the province will be trained under the programme to execute and manage the works on behalf of the NPRA. The first batch will be trained from February 2002 and the second batch to follow from July 2002.
ILO support to Sustainable Lusaka Programme

By Tomas Stenström, ASIST – Africa, Zimbabwe

Sustainable Lusaka Programme (SLP) is a programme implemented by Lusaka City Council (LCC). It is part of the Sustainable Cities Programme being implemented globally by the United Nations Centre for Human Settlements (UNCHS Habitat). The peri urban settlements in Lusaka pose a great challenge as regards service delivery, and LCC and other development partners have adopted a community-managed approach. The urban settlements Ngombe, Kamanga, Mandevu-Marapodi and Linda in Lusaka have been selected by SLP for its interventions.

Initially, SLP requested support from the ILO1 in the areas of enterprise development in relation to solid waste management, and capacity building in community contracting in relation to infrastructure development.

Community mobilisation

It became clear, after initial discussions, that the priority areas for these communities were improved service delivery in relation to solid waste and water supply. It would therefore be necessary to establish public-private partnerships, support enterprise developments, and train public and private actors in these areas. This would be done by building on the ILO Start and Improve Your Business (SIYB) training package, adapting and modifying it for the target groups. The infrastructure component that was initially envisaged was considered too costly for the programme implementers and was taken out of the present phase of the support.

Community members in the targeted settlements were made aware of the training through seminars, and have shown great interest in participating and in setting up economic activities related to solid waste management and water supply. In fact, community members have asked for more training in business management to better operate other businesses.

Training

Two sets of training packages have been developed for SLP by the ILO for community groups to start businesses related to solid waste management and water supply management.

Six local Master Trainers in Zambia have received training in the use of the material and have been actively involved in the training. They are very familiar with the training material and course methodology, and are able to deliver this training without external support.

Out of six solid waste collection enterprises created from the training, five are still operational. These enterprises have come together in an association. The association has already made a proposal to purchase a truck for secondary waste collection, which has been a problem in the past.

The trainees in water supply management from Ngombe and Linda compounds are now well equipped to manage a small water supply scheme. The trainees will form a community-based enterprise to run the water scheme in their settlement.

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Community contracting

For solid waste collection a set of contracts were developed to firm up relations between LCC and Community Based Enterprise (CBE), RDC and CBE, and between Household and CBE. These contracts are, however, not in use at the moment. LCC is reluctant to sign with the CBE as they cannot guarantee secondary waste collection, and not all households participate.

For water supply management a contract has been proposed between LWSC and the CBE. The contracting arrangements have not yet been tested. There needs to be a contractual arrangement between RDC and CBE as well to confirm RDC’s status as the elected body in the settlement, and to enable RDC to collect a fee for activities that have been sanctioned by the community.

Recommendations

The SLP is coming to a close and it will be crucial to follow up on the trainees. Besides the general follow up to the training, it will be important to follow up on the contractual arrangements. The local authorities and institutions involved in service provision should be actively involved in monitoring development activities in the communities and provide necessary backstopping.

Water enterprises should not be burdened with costs related to water infrastructure – that is beyond their capacity. The LCC and LWSC should still be responsible for the long-term sustainability of the assets.

Contact details of the Master Trainers and a brief description of the training should be made available to ensure that the developed training capacity is accessible to the public.

Finally, it would be interesting to pursue labour-based community managed infrastructure upgrading as envisaged at the start of the project. Sustainable mechanisms for funding of upgrading and maintenance must however be found.

1 ILO support to this programme is provided by ASIST-Africa, the Public Private Partnership Programme (ILO Small Enterprise Promotion Programme) and SIYB, Harare.
Advisory Support Information Services and Training (ASIST)

The Employment-Intensive Investment Programme (EIIP) of the International Labour Organisation (ILO) is a large-scale technical co-operation programme promoting the use of local resource based technologies in infrastructure works in developing countries, and strengthening their capacity to apply such technologies. ASIST is a programme of advisory support, information services and training, within the EIIP.

ASIST currently comprises two regional support programmes in Africa and Asia working within the framework of the EIIP. Their objective is to increase the use of cost-effective local resource based strategies in the provision of sustainable infrastructure, and in so doing create employment with fair working conditions for men and women.

Advisory Support
ASIST advises on project and programme design, co-ordination, monitoring and review of urban and rural labour-based programmes, Access and Rural Employment (ARE) programmes and Integrated Rural Accessibility Planning (IRAP) programmes.

Information Services
ASIST actively gathers, synthesises, and disseminates relevant published and unpublished information on and related to rural and urban labour-based technology and ARE. ASIST provides a Technical Enquiry Service to respond to specific requests for information. ASIST maintains a database of contact persons and institutions involved in the promotion and development of labour-based technology and ARE.

Training
ASIST provides support to national training institutions and universities in the development and provision of training. This involves support in the development of curricula, training programmes and material, training techniques, and methodology. ASIST also supports the international labour-based roadworks training courses for engineers, senior technicians, contract supervisors, and trainers, organised by the Ministry of Roads and Public Works (MoRPW), Kisii Training Centre, in Kenya.

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