



# ASIST

ADVISORY SUPPORT INFORMATION SERVICES AND TRAINING FOR LABOUR BASED PRACTITIONERS

A Programme executed by the Employment-Intensive Investment Branch (EMP/INVEST) of the ILO

## Asist Bulletin no. 3, August 1994

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### EDITORIAL

This edition of the ASIST bulletin focuses on equipment support to labour-based roadworks activities.

The topic is introduced by Rob Petts who has been closely involved in the Kenyan Roads 2000 programme since its inception. This programme aims to apply the appropriate mix of labour and light equipment to the maintenance of the whole gazetted road network by the year 2000.

David Stiedl looks at the important question of compaction and clarifies just what degree of compaction we should be trying to achieve. He puts into perspective what worthwhile compactive effects can be produced by the different types of equipment available to labour-based programmes.

Following on from his contribution at the Harare regional seminar, Jim Hamper presents some useful tips on how to tackle the often-neglected problem of equipment maintenance. Jim has been largely responsible for the development of heavy duty trailers designed to cope with the tough demands of labour-based materials haulage. The centerfold gives you scaled-down drawing of these trailers. You can get full size versions from the TES.

A new feature in this issue is the Trainers Corner which is designed to be a forum for your views on labour-based road works training. The ball is set rolling by two or four most experienced trainers. Let us have your views as well.

Bundled with this issue is a Publications Catalogue of books which you can order from our Technical Enquiry Service. Most of them we have to charge for, I'm afraid, but a few of them are free. The free ones comprise reports published in the Construction Technology Programme series - CTPs for short.

Finally, our thanks to all of you who wrote in with news of your projects. As you can see, we have had to expand the bulletin by four pages to accommodate it all. But that's as it should be. This is your bulletin, so keep the info flowing.

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### The work of ASIST

#### What

Advisory Support, Information Services and Training (ASIST) is a regional project based in Kenya, covering all countries in Sub-Saharan Africa.

#### Why

The objective is to improve the effectiveness of the use of labour-based road rehabilitation and maintenance in the region.

#### How

The ASIST project has three components:

- **Advisory Support:** by technical experts visiting projects providing advice on technical, organisational and management aspects of labour-based road sector programmes.
- **Information Services:** by a Kenya-based data centre, to provide advice and resource material, on request, to staff and organisations involved in labour-based roadworks.
- **Training:** by training specialists, to develop and conduct international courses, seminars and study tours on labour-based road programme management and supervision for
  - engineers
  - supervisors
  - trainers

#### Who

Advisory Support: David Stiedl, Collins Makoriwa

Information Services and Training: David Mason, John Omwanza and Paul Sifvenius.

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Who Needs Equipment ?

### Intermediate equipment to support labour-based roadworks

By Robert C Petts, Principal Intech Associates, Consulting Engineers

Is all this necessary for labour-based works and is it appropriate ?



Labour-based road works have been successfully introduced and increasingly employed in developing countries over the last two decades as a viable alternative to highly problematic heavy plant-based methods. The economic and social benefits of the mobilisation of local labour and management resources are now appreciated by many planners, voters, politicians, and even engineers.

The numerous successful programmes have demonstrated that local labour can construct or rehabilitate earth or gravel roads, and maintain them in good condition. As demand for labour-based applications increases, including main and urban roads, we appreciate that there is a need to support the labour with basic equipment for certain operations for which labour is not ideally suited. These include haulage for distances more than about 200 metres, compaction, and surface grading of high traffic roads. We should also not forget the need for appropriate supervision transport (i.e. which does not spend most of its life "unserviceable").

Simple, or intermediate, equipment can often be manufactured locally to meet some of these needs. It can be tractor-based animal drawn or hand operated. Capital costs of local manufacture can be significantly lower than imported sophisticated equipment. Other benefits include easier maintenance, lower operating costs, and the added advantage of development of the local manufacturing capability (which also creates local employment). This all adds up to a greater chance of sustainability and getting the job done at a reasonable price!

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### Problems to avoid

But aren't we still at the mercy of the equipment demon? - not if we are sensible. We have to be careful to avoid the common problems that usually bedevil the use of heavy plant in developing countries. It may be worthwhile restating some of these:

- Dedicated function (can only be used for one operation)
- Interdependence (e.g. dozer, loader, trucks, motorgrader, bowser, roller, all required for gravelling - what happens when one link in the chain breaks down?)
- All equipment and spares imported - consuming scarce foreign exchange
- Long spares supply lines and delivery times
- Limited local market for equipment sales
- Few dealers able to provide the necessary close support
- High capital costs
- High cost of spares
- High-pressure hydraulic systems
- Sophisticated mechanics and electronics
- Specialist repair and maintenance skills and tools
- Frequent model "improvements" ensuring spares stocking and procurement problems and "planned" obsolescence
- Disposable components; difficult to repair or refurbish.

We must not forget that heavy plant has been designed for use by contractors and road authorities in the developed world, with the essential need to make the best possible use of a labour resource typically costing US\$50-150 per day in wages alone, where spares come "off- the-shelf" (or latest by the next day), where workshops are highly efficient and the equipment actually performs for 1,000 to 2,000 hours per year. Larger and more buoyant markets, competition and efficient supply lines also ensure that the cost of purchase and support of heavy plant is considerably cheaper in the developed countries.

"Improvement", or equipment development in this context means squeezing an extra couple of percent in the hourly output, possibly shaving 0.2 litres/hour off fuel consumption, labour- saving equipment maintenance, ensuring the exhaust emissions are "green", and motivating the purchaser/operator with sound-proofed, air-conditioned cabins and the latest in audio high fidelity system technology.

Although these are laudable considerations they are not the priorities of developing countries.

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### Our Requirements

Back to our own intermediate equipment requirements ... there are a number of important questions when considering policy and selecting intermediate items of equipment suitable for our needs to achieve satisfactory performance. Our equipment checklist should include:

- Do we really need it?
- Can we somehow avoid the costs and hassle and produce a cost-effective job without it?
- Is it locally made/assembled?
- Are we using the local skills available?
- Is the design proven
- Are trial required?
- Are standard designs available?
- What is the known performance?
- Does the equipment perform the task adequately (not necessarily perfectly)?
- Is it robust enough for its working and support environment?
- Could it be simplified? (If a feature is not essential, don't fit it - it can't them break!)
- Flexibility: can the equipment be used for a range of activities?
- Is there an adequate procurement specification and procedure?
- What quality assurance measures are there?
- What are the arrangements for inspection and rectification of faults on delivery?
- Is there an effective warranty from the manufacturers/supplier?
- Is there an agent to effectively support its field operation?
- What happens if it breaks down in the first year of operation?
- What are the likely service and repair requirements (timing, skills, tools and facilities)?
- What are the fast-moving and other spares requirements?
- Are all spares available and at reasonable cost?
- Is it advisable to obtain spares for, say, tow years' operation with the initial procurement?
- Who will own, control and maintain it (not necessarily the same responsibilities)?
- What are the likely capital and running costs, operating life and whole life costs?
- How will these costs be financed?

- What are the training and manpower development needs?

If there is nothing suitable on the local market, can we borrow/adapt suitable designs fro elsewhere? Can we develop our own solutions using local resources?

As you can see it is not a straightforward matter, and it is not surprising that even with intermediate equipment, insufficient attention to the foregoing aspects can result in the old heavy equipment problems recurring.

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### What Next ?



It is apparent that at present we do not have all the answers to the above questions and there is a need to pool our collective experiences so that we can learn from these, register achievements and collectively develop all the intermediate equipment that will serve our purposes. There is already a substantial body of experience among practitioners that need to be gathered and documented. It is important

for us to identify our equipment needs, develop and test prototypes, establish acceptable standard designs and specifications (and options), and develop specifications (and options), and develop recommendations on procurement, management and support. It will be important to obtain answers to many of the above questions before we encourage small local contractors to invest their money and future in intermediate equipment on a large scale.

With a collective and cooperative approach we can convince road authorities, agencies, manufacturers and contractors of the mutual benefit of the development of a viable (local and international) intermediate technology equipment industry to support the road sector. ASIST seems to be the only body currently able to effectively coordinate this task and i appeal to you all to provide your active support by advising ASIST of your intermediate equipment needs and experiences, and offering assistance with desk and field development of the intermediate equipment.

Going back to the title of this article: Who need equipment?... We all do, to a greater or lesser extent, to support our labour-based activities. However, it must be appropriate and effective, as as simple and adaptable as possible. It should be cheap to purchase and maintain and, if possible, be manufactured or assembled in the country of use. We must all ensure that we get what we need through active involvement and cooperation in development. It is no use sitting back waiting for somebody else to take all the initiatives - they may be waiting for YOU.

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## LETTERS TO THE EDITOR

*Send your letter to the Editor, ASIST, P O Box 60598, Nairobi, Kenya*

The ASIST Bulletin has received several letters from readers in the field - thank you for the response. All the CV's received have now been placed in our database ready for use.

We have not published any of these letters because none of them were geared for publishing. We hope that the two articles in the Trainers Corner will stimulate your views - please write in. (Ed).

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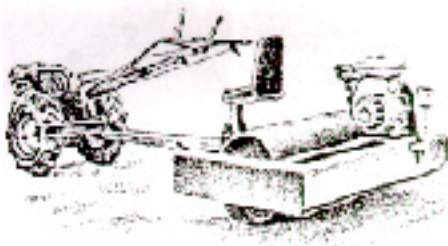
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### Compaction Equipment

#### What is appropriate for labour-based works?

By David Stiedl, Programme Director, ILO/ASIST



One of the most common enquiries we get from the field is about what sort of compaction equipment is suitable for labour-based works (and where to buy it). The usual recommendation is the 1.25 tonn twin drum pedestrian operated vibrating roller. This has adequate compactive effort, a level of output appropriate for the work, and reasonable reliability. It can also be transported around with ease.

However, projects are quite often shocked at the expense (US\$20,000 duty paid in Kenya), the procurement delays (they are not stock items in most of Africa) and the ease with which they get damaged or break down. They are quite complex machines and the feeling is that something more appropriate must be available.

Various dead weight rollers have been tried, towed by tractors, animals or people; equipped with steel wheels, rubber tyres, and even sheep's feet, but all have proved unsatisfactory for one reason or another. To generalise for the sake of of this short article, the tractor towed equipment is too un-maneuverable for many passes on our short lengths of daily output, and the non-motorised is often too light to be effective.

Perhaps it is necessary to consider why we need compaction for gravel and earth roads anyway. The Kenyan Rural Access Road Programme stopped using formal compaction at a very early stage, simply relying on consolidation effects of traffic and weather. Over six months the road would be reshaped occasionally, and then gravel added to attain the final shape. Independent studies by TRRL demonstrated that these roads had a perfectly acceptable riding surface for their level of deterioration than compacted roads. And this is all we really need from a rural road. The programme still uses the techniques for roads taking well over 100 vehicles per day.

It can be argued however, that Kenya is blessed with good sub grade materials (or tolerant road users), and not all rural roads can survive early trafficking to reach a good consolidated shape. This then brings us into the difficult area of how much compaction is necessary to have the desired effect.



Many standards are found in the text books. Most of these relate to the density you can achieve relative to a standard laboratory density test (these have various names, BS Light, Modified AASHTO, but essentially they boil down to whether you are hitting the sample with a 2.5 kg or a 4.5 kg weight). These

standards are primarily intended to ensure suitable densities for base, sub-base and sub-grade for surfaced roads. As these will have an expensive and (relatively) permanent bitumen coat, minimising pavement failures is essential. However, earth and gravel roads simply have to avoid excessive rutting before consolidation, so much lower standards should be acceptable. Or should they?

An all too common sight on some labour-based roads is the concrete-filled oil drum towed behind a reluctant donkey making some nominal passes on loose dry formation. The compactive effort is obviously zero, but there is the feeling that something is better than nothing. This may not be true in our case. Some years ago the World Bank commissioned a number of studies on the substitution of labour for equipment. On the subject of compaction<sup>2</sup> it clearly identified this sort of activity as a waste of time and resources. However, it did identify a middle way solution (termed intermediate) which might be beneficial. The sort of standards we are talking about for our pavement are in the order of 95 % Standard Proctor (BS Light or the 2.5 kg weight) as opposed to the usual 98 % of Mod AASHTO (BS Heavy). The question for us is What sort of equipment is necessary to achieve this?

A lot of work has been done by TRRL and others on standard compaction equipment. The achievable densities have been translated into method specifications whereby the number of necessary passes can be specified for any given plant type on different soils for a specified layer thickness and moisture content, and this is often the only information needed in a contract specification. Easy to supervise and easy to cost! Our one ton vibrating roller can usually hit the target with six to eight passes. But our light tractor/animal/people-towed rollers do not feature on the list.

A number of studies have been carried out on labour-based projects. The best documented is by the ILO in Thailand<sup>3</sup>, but thorough work has also been carried out by Dr Kyulule of Dar es Salaam University<sup>4</sup>, and somewhat less rigorously by the Technology Unit of the MRP<sup>5</sup>. The consistent finding is that with a minimum of one tonne (or a 1.0m diameter 0.9m wide water-filled drum) it is possible to achieve 95 % BS Light on some materials, but can take a lot of passes (10 to 12 on some soils) and a one ton weight is difficult to handle and impossible for animals on steep grades. Lighter rollers have no significant effect (in density terms).

The most promising avenue was a purpose made towed vibrating roller hitched to a power tiller. This was developed by the ILO in Thailand in collaboration with the Chaing Mai University and is fully documented in CTP<sup>6</sup><sup>43</sup>. Power tillers are not yet common in Africa but they are the common workhorse of the Far East. They are cheap, their technology is simple, and they could be seriously considered for our projects as a useful introduction (maybe more useful than the ubiquitous Landcruiser). The cost of a power tiller was US\$3000. Compare this with US\$20000 for a vibroll (that can't substitute as a piece of haulage equipment when otherwise unoccupied).

Of course, if you don't get the moisture content right you are still wasting your time (there is currently no evidence that our light equipment can achieve dry compaction), but one of the advantages of the labour-based approach is that natural materials are usually at an optimum moisture content when you excavate; it's just important to spread and compact the same day.

In conclusion, it should be remembered that we are moving increasingly towards small contractors in the labour-based road sector. The small contractor can usually get the hand tools he needs, hauling equipment of some sort is available from some local source or other, but the specified pedestrian compactor is always unavailable and a major restraint on project replication and expansion. If we are to go this route we must either put more emphasis on the non-equipment consolidation approach (difficult

with a contractor needing completion certificates) or we must look into new methods that involve local manufacturer and maintenance - this doesn't mean old drums and 80 % densities.

What should we do? It has to be acknowledged that more research is needed on "intermediate" compaction. Perhaps as a start it would be useful to know what densities are currently being achieved on our sites, and how much rutting and roughness is experienced in the early stages of construction. Then we should also consider investing in alternative compaction devices. Power tillers and good quality towed rollers are no more difficult to obtain than a 1.25 tonne vibroll, but they have to be specified in the first place. Lastly, all pilot projects should make sure they produce a proper method specification for the materials and equipment they use. Simply stating 95 % BS Light means nothing to the technicians in the field.

If a project needs assistance in these areas, either we research on compaction standards or specifications of alternative equipment, please contact ASIST. As a start we include a drawing of the human towed roller developed by the Kenyan MRP. It works and is even reputed to be popular with the workforce, but it has not been generally adopted as the MRP gets the standards it needs with indirect compaction (traffic, weather, and dedicated re- shaping).

1. C I Ellis and J Holt: Compaction For Rural Access Roads in Kenya: Preliminary report. Working Paper No. 52 (Crowthorne, UK, Transport and Road Research Laboratory Overseas Unit, 1979)
2. World Bank: Study of the Substitution of Labour and Equipment in Civil Construction: compaction. Technical Memorandum No. 17 (Washington, DC, Transport Research Division, December 1975).
3. Lars Karlsson: Pilot Project on Labour-Based Road Construction and Maintenance in Thailand: Compaction by Labour Compatible Equipment. CTP 64 (Geneva, ILO, March 1987).
4. Dr A L Kyulule: Labour-Intensive Compaction in Developing Countries. The Tanzania Engineer, Vol. 1, No 3 (Dar es Salaam, Tanzania, June 1984), PP 10-17.
5. Ministry of Public Works, Republic of Kenya: Minor Roads Programme Technology Unit Compaction Field Trials Report: hand/animal drawn roller. (Nairobi, Kenya, Roads Department, April 1991).

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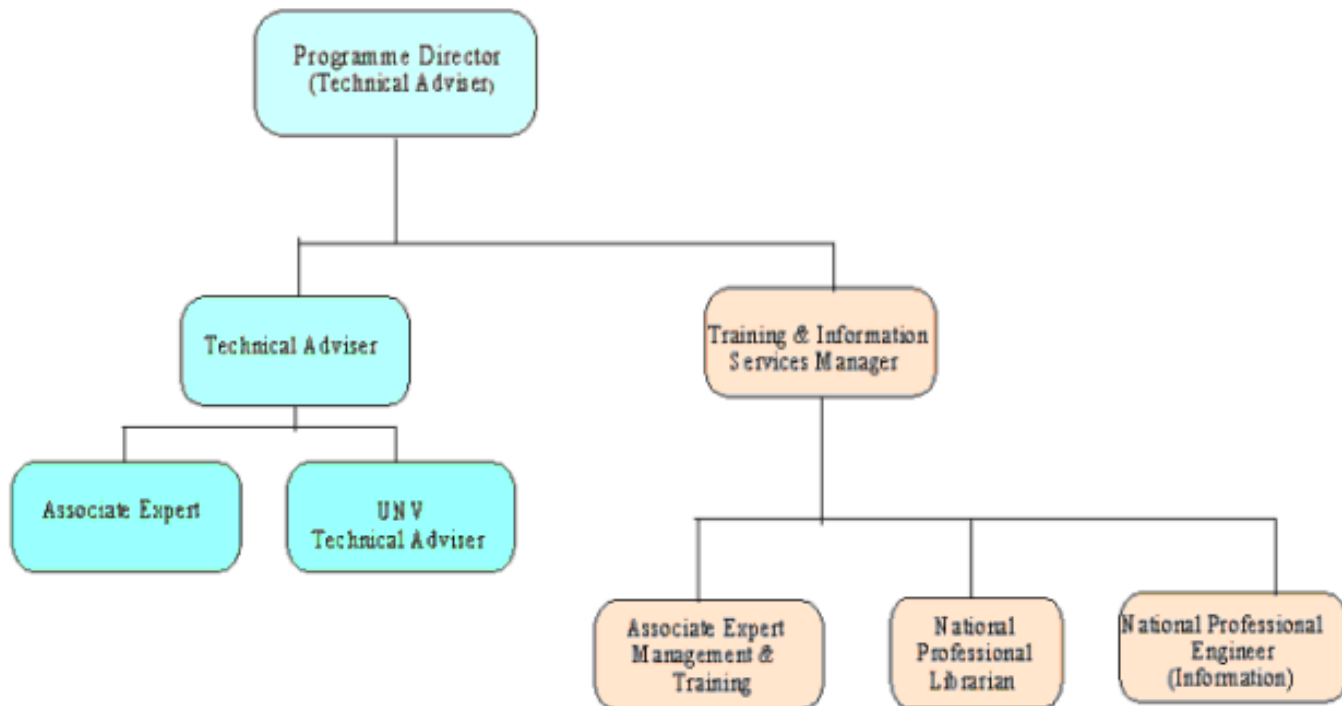
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### ASIST IN ZIMBABWE

Due to internal restructuring of the ILO, it has become necessary to move part of ASIST to Harare. The aim of this move is to strengthen the ILO's involvement in employment creation through promotion of labour-intensive civil works. Our new office address in Harare will be: ILO/ASIST, c/o SAMAT, P O Box 210, Harare, Zimbabwe.



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### EQUIPMENT MAINTENANCE

*By Jim Hamper, Mechanical Engineer, Unpaved Roads, Ministry of Public Works and Housing, Kenya*

In the successful operation and management of any fleet, regardless of its size, one of the most important factors is maintenance. Equipment maintenance may be categorised under three headings:

- Regular Service
- Preventive maintenance
- Emergency repairs

As the main objective of any equipment maintenance scheme is to ensure a suitable availability rate, we must emphasise the importance of regular and preventative maintenance. All too often fleet managers rely mostly on emergency repairs resulting in longer and more costly repair periods and a lower availability rate. In an effort to give some guidelines for a maintenance scheme, and for the purposes of this article, certain assumptions are made:

- The equipment fleet is project oriented on a long-term basis, owned by the user (Govt.) And maintained through project workshops with a view to sustainability of the maintenance system
- The equipment is what's commonly classified as light equipment i.e. that equipment used for construction, gravelling and general maintenance under labour-intensive methods.

With these assumptions in mind, there are several options that could be considered for the maintenance of a fleet:

- That the equipment is owned by the user and repairs and maintenance are framed out to local private workshops. This system is one of the easiest and quickest to initiate in the short term, but can prove to be very expensive and time consuming in the long run. For this, one has to consider where the fleet will be operating. If it is in remote areas, Are there workshops available?, Do these workshops have the trained staff and capability of supplying all the necessary spares and materials? In addition, is the current procurement system conducive to this type of service costs? There would be very little possibility of getting competitive bids in remote areas for this type of service.
- That the equipment is leased from and maintained by a local equipment supplier. This system is very favourable when the project has a specific objection such as construction of a bridge, dam, road etc. and the equipment is no longer required for sustainability after completion of the project. This method avoids the large financial commitment for the initial equipment procurement, should ensure that equipment is always available, and overcomes the problems of disposal of equipment

on completion of the project.

When do we start thinking about equipment maintenance? This should be considered in the very early stages of a project's development. This is especially important when several donor are involved in the procurement or funding of equipment. It is much easier and cheaper to maintain a fleet of 50 tractors of one make and model that it is to maintain the same fleet made up of several different makes. In most cases, project equipment is imported from other countries, and not always from the same country. For example, one make of tractor could be imported from three different countries, all having different specifications and different spares requirements. When this happens, the supply of replacement part becomes a major problem for both the maintenance system and the host country. Before equipment is purchases, a comprehensive analysis should be conducted in-country to determine what is the best equipment type to purchase in regards to back-up service and availability of spares.

Tips for establishing a Project Equipment Maintenance scheme:

- Standardisation of equipment makes and models.
- Determine at the outset what type of maintenance scheme will be used. Consideration will have to be given to availability of skilled personnel. This should not be taken for granted.
- If workshops and repair depots are to be established, sufficient funds should be available for construction and equipping of these workshops to coincide with the beginning of the project, not half way through
- Investigate the possibility of combining facilities with another project using similar equipment. This is sometimes possible if the fleets are not too large
- Leave mechanical matters to mechanical people!

## **Procurement and stocking of spares**

A reliable supply of spares is essential to the operation of any moving scheme. Spares are generally divided into two groups, fast moving and slow moving. The fast moving (or service) items such as filters, plugs, points etc are regularly turned over 8-10 times per year per vehicle and are the backbone of preventive maintenance. The slow moving (or hard parts) such as engine and gear box spares are turned over less frequently. This of course will depend on the age of the fleet and the effectiveness of the preventive maintenance.

What quantities and types of spares to stock is a question often asked by management. Historically, mechanics and storeman like to have as much as possible, frequently overstocking. Management, on the other hand likes to keep stocks to a minimum, reducing overheads and losses through theft and obsolescence. This frequently results in under- stocking and delays in repairs. Stocking quantities are dependent largely on availability in the country. Some dealers are very willing to stock parts for specialised fleets as they know they have a ready market.

**A WORD IF CAUTION!** Today in the automotive industry, a lot of ono-genuine spares are being offered on the market and being sold as genuine. These spares, although difficult to detect, should be avoided at all costs. A second problem is if the spares are purchased through a government bidding system, the dealer stocking may not be the lowest tender and as a result, the spares could still not be purchased.

In the event of spares not being readily available and having to be ordered, a lead time and delivery

schedule must be determined. If for example the lead time (time from ordering to time of delivery) is two months then a four-month stock is not unrealistic. Orders should be planned for delivery before the stock supply goes below one month.

Initial stocks of spares should be purchased with the equipment. A rule of thumb for this initial procurement is 10 % the value of the equipment. If some caution is taken with this order the spares received should be adequate for two years. Dealers can be of assistance in preparing this list but it should be finalised by project mechanical personnel. Adequate storage facilities and a stock control system should be in place before delivery. Today, there are several simple computer programs available off-the-shelf for stock inventory and control. This initial stock should be managed as a revolving stock. As spares are used they should be immediately re-ordered and placed back in stock. This will help to alleviate shortages due to lengthy Government procurement procedures. The initial stock acts as a cushion.

## **Equipment procurement**

Equipment procurement is probably the most difficult and controversial part of any fleet management scheme. There are as many ideas as to how this should be accomplished as there are donor agencies. Ideally, as stated earlier, a fleet should be composed of as few makes and models as possible. The fewer makes and models, the fewer spares to stock, the easier to train mechanics and the lower the maintenance costs. Unfortunately few Government procurement systems consider this point. Government supply contracts are usually awarded on a yearly basis and are based on lowest price regardless of make or model. Problems can also arise when equipment procurement is handled by donor agencies. In some cases, donor countries prefer to have as much equipment as possible imported from their home countries. This method becomes even more problematic with multi-donor assisted programmes.

In some cases equipment purchase is undertaken by private Procurement Agencies far removed from the project. This method usually provides for the best price comparisons and availability. However, as good as it may look on paper, it does not necessarily experts on equipment specifications. In this case it is essential that the procurement agency be given very clear and detailed specifications for the equipment required. General guidelines are not good enough.

There is no easy answer to the problems of fleet procurement. However, solid research on in- country availability and back-up support for types of equipment to be purchased is a very sound start.

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### Pinboard

- The second orientation course for Engineers and Managers on Labour-based Road Engineering for Developing countries was held at Delft, The Netherlands. The course was shortened from five days to three days. There were 14 participants from seven countries in addition to 13 students who are already attending for Development Course. The bulk of the course was presented by Professors Howe (IHE) and McCutcheon (University of the Witwatersrand). It is envisaged that the next course may be made longer (maybe four days) in line with the results of the course evaluation.
- The proceedings of last year's seminar for labour-based road construction practitioners that was organised by ASIST and hosted by the Institution of Zimbabwe Engineers in Harare have been printed.  
Those interested in having a copy can get in touch with the Information Services of ASIST in Nairobi. (See Diary of forthcoming events for the next seminar).
- Labour-intensive urban works have been gaining popularity. Pro. McCutcheon had an input in the Delft course. In Uganda, Tanzania and Kenya, labour-intensive urban works are taking off and ASIST has been asked to play a role in some of these projects.
- A set of manuals is currently being compiled by A. Beusch for the contractor training programme in Lesotho. This material will be ready by the end of August. Basically, it will be a collation of the material currently available with necessary additions.
- Terje Tessem, who worked in ILO-Geneva for the Employment Development branch of the International Labour Organisation (now Policy Development POL/DEV), will take up his post as the Employment-Intensive Works and Rural Transport adviser to the Multi-Disciplinary team in Harare in September.
- TRL hosted a Residential Course on Appropriate Technology Road works for Developing Countries from 4 - 8 July 1994.

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# ASIST

ADVISORY SUPPORT INFORMATION SERVICES AND TRAINING FOR LABOUR BASED PRACTITIONERS

A Programme executed by the Employment-Intensive Investment Branch (EMP/INVEST) of the ILO

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Diary of Forthcoming Events

## University of the Witwatersrand, South Africa

Two short courses on: 12th - 16th September 1994 Employment-Intensive Construction

1. Orientation Course (2 days)
2. Advanced Course (3 days)

### Contact:

Mrs. L Stephenson  
Continuing Engineering Education, Faculty of Engineering  
P O Box 327, WITS 2050, South Africa  
Tel: +27 11 1716 5091  
Fax; +27 11 339 7835

## Regional Seminar for Labour-based Practitioners

Following on from the successful meeting in Harare last year, the next regional seminar is due to take place in South Africa, where our host will be the University of the Witwatersrand. The themes for the seminar will be Urban Development and Training and dates are 16-21 January, 1995. Those interested please fill in the attached form and send it to the training specialist ILO-ASIST as soon as possible, as these courses are often oversubscribed.

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## Book Review

### **Vibratory soil and asphalt compaction, BOMAG-MENCK GmbH.**

This booklet by Bomag is useful guide when deciding on the compaction equipment that one needs to specify. It gives a simple yet comprehensive explanation of soil properties in relation to compaction indicators concerning methods of compaction control.

### **Better Tools for the Job, W Armstrong IT Publications**

This is one of the best publications on tool specifications for labour-based projects. However, the section on Tractors and Trailers has been superseded by the latest technology development. It is based on the experience of the Technology Unit within the Minor Roads programme in Kenya. In fact portions of the ILO Guide to Hand tools and Equipment are based on the material in this booklet. A must for anyone buying tools for labour-intensive works.

### **Compendium 10, Compaction of Roadway Soils, Transport Research Board, National Academy of Sciences.**

This is a collection of works on compaction by various experts in the field. It has a comprehensive coverage of all aspects and caps off with explanations on the characteristics of tropical soils.

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### MRP Trailer Drawings



3 meter cubed Non-Tipping Trailer



3 meter cubed Tipping Trailer

Finding adequate trailers for labour-based road construction programmes has always been a problem. In Kenya, the Minor Roads Programme has over the years developed two trailers (one tipping and the other non-tipping) that seem to be ideal for this sort of work.

Both trailers have a volume of 3m<sup>3</sup> and are locally manufactured. The non-tipping has been extensively used throughout the programme without any problem. The tipping trailer is still undergoing minor refinements, mainly to locate the ideal position for the hinge.

These trailers can be easily towed by 65hp two wheel drive tractors and apart from the stub axles, all parts can be easily purchased off-the-shelf in most countries.

Further details on the non-tipping trailer, and on a compatible heavy duty hitch, can be found in ASIST Technical Brief No.1, which is free on application to the Technical Enquiry Service.

- [DIAGRAMS OF NON-TIPPING TRAILER](#)
- [DIAGRAMS OF TIPPING TRAILER](#)

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### Training of Adult professionals

*By David Jennings, Training Adviser, Department of Staff Training, Ministry of Public Works and Housing, Kenya.*

The training of supervisors for labour-based road works is a key factor in the success of any project or programme using this technology choice. It is the hope and intention that labour-based methods will become part of the normal curricula for all Civil Engineering and Technician courses, thus making it just one more tool in the Civils repertoire. This tool may be used where and when appropriate, determined by sound, informed, professional judgment. Until that time, the expounding of the technique will fall to project-based trainers.

Most of the trainers currently trying to impart the skills required by this technology (including myself) have themselves learnt these skills through trial and error (mostly error). We have come to the position of trainers through trial and error (mostly error). We have come to the position of trainers through the engineering route and not through any formal expertise in communication skills. The first meeting of labour-based trainers in January this year showed this very effectively. The call was for information on how to train rather than on what to train.

The training of trainers was seen paramount to the continuing success of the expansion of labour-based road works. This does not just mean more people who know and can explain the techniques and skills involved, but also who have the skills to impart this knowledge to others in an effective way.

Most programmes will be required to train either contract staff or department staff who already have a number of years' experience in engineering works, using methods other than labour-based ones. A traditional teaching or lecture-type approach is an inefficient and ineffective method for Training such Adult Professionals.

Over the last few years Kisii Training School has had the privilege of being able to train all its staff in the modern techniques of Adult Training, in particular the system of "Problem Solving Approach" (PSA) on the training of adults. This approach is a multi-media, discovery process rather than a chalk, talk, cram process. PSA uses the participation of the trainees and their experience to provide them with learning situations from which they solve real problems, identified by themselves, and immediately put the solutions to the test in real situations on site. The solutions are the product of controlled discovery utilising both the resource persons (Trainers) and the other participants through group discussions, role games and other participatory activities like actual physical work. There is nothing that teaches the meaning of task rates better than performing a 5m<sup>3</sup> excavation task oneself!

The training courses are set up so that discoveries can be immediately visualised and recorded (normally

Meta-Plan type techniques) and these recordings form the manual for the course, which the participants take away. This avoids the usual situation where all the participants are given an enormous volume of material that they never look at again once they have completed the course.

Most of the trainers in current projects have what are called Training Manuals. These are in fact nothing of the sort. The manuals available to most projects are volumes which describe the Roadworks techniques and specifications, not the training techniques nor help for the trainer. The call by the meeting for a "FPG" manual will undoubtedly fall into the same trap and produce not a training manual but another technical manual. This will either be so general, in an attempt to cover all possibilities, as to make it too expensive for most projects to procure. In any event it will not be the trainer's savior.

What is required in the field of labour-based road works training is a concerted and coordinated effort on the part of trainers to ensure that they themselves are fully conversant with modern training techniques and are properly trained to train.

More information about training techniques and adult education is available from any good adult training centre. The ILO/ASIST Trainer's Toolbox contains a description of the basics of most techniques. KTS will be glad to share its experiences with anybody interested.

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KTS-ASIST international training courses on labour-based roadworks management

### 1. International Course for Civil Engineers (7 weeks)

#### Target group

The course is aimed at civil engineers and project managers of labour-based road projects.

The course deals mainly with management issues and is designed to build on the existing engineering experience of the participants. It is expected that participants will have previous site experience and educational qualifications equivalent to at least a first degree in Civil Engineering.

The duration of the course is 7 weeks and maximum course size is 16 participants.

**Course fee** US\$ 4,000 (excluding travel to and from Kenya).

### 2. International Course for Senior Technicians (7 weeks)

#### Target group

The course is aimed at senior supervisory staff who are engaged in the management of labour-based road works programmes at the senior technician level.

The course deals with both technical and management issues and is designed to build on the existing engineering experience of the participants. It is expected that participants will have had previous site experience and an educational qualification equivalent to a Higher National Diploma in Civil Engineering

The duration of the course is 7 weeks and maximum course size is 16 participants.

**Course fee** US\$ 4,000 (excluding travel to and from Kenya).

### 3. International Course for Instructors (4 weeks)

#### Target group

The newly designed instructor course is aimed at labour-based practitioners which are engaged in training activities in the field of labour-based roadworks.

The course will consist of a two weeks introduction to training of adults using participatory methods and a two weeks practical attachment in Kisii Training School under the supervision of the experienced KTS instructors. The course participants should have considerable field experience in the application of

labour-based roadworks and have preferably attended the International Course for Engineers/Technicians. The duration of the course is four weeks and maximum course size is 16 participants.

**Course fee** US\$ 4,000 (excluding travel to and from Kenya).

## **General**

The courses will be conducted at Kissi Training School (KTS) instructors, engineers from the Ministry of Public Works & Housing, consultants and ILO personnel.

**The course fee includes:** all tuition, complete course documentation, accommodation and meals, field trips, social events, a per diem allowance in Kenya shillings equivalent to US\$ 10 a day for incidental expenses (laundry, drinks, phone calls etc).

**The course fee does not include:** full insurance cover for participants while traveling to Kenya or during the course. The nominating organisation should organise adequate insurance cover for their candidates. Travel costs from the participants' countries to and from Jomo Kenyatta International Airport, Nairobi.

**Payment procedure:** The course fee must be paid before the start of the course by telegraphic transfer to (please note that cheques are not acceptable):

KTS-ASIST Account  
Barclays bank of Kenya  
A/C No. 8-1040-990  
P O Box 99, Kisii  
KENYA

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### Let's Train!

An almost serious contribution to training development for labour-based road works.

*By Andreas Beusch, Training Consultant, Intech-Beusch Associates, Chur, Switzerland*



Who does not like training? It seems almost everybody involved in the labour-based roadwork game likes training. Experience shows that this is certainly the case with donor agencies, consultants and road authorities. I have even heard that some trainees like to participate in course - especially when they are held abroad. There seems to be no question that training is a good thing and at least, even if the project goes down the drain, the training component appears to be positive project aspect.

But are we doing the job right? How many of us are educated trainers, and how many of us became a trainers, how many of us became a 'trainer' by just being one day posted to a training institution? One could argue that all of us have plenty of first-hand training experience as we all went between 14 and 20 years to school. Honestly, we sat on the wrong side of the desk - the blackboard was not at our back. We certainly became technical experts but the 'what' (didactic) and 'how' (methodology) of training was never part of our professional education. Over the years many of us learn by doing, acquire some tricks and maybe even attend educational courses.

However, the result of this approach is that training design and implementation in many projects is tedious and takes far too long. It is also a reflection of the urge of many training projects that the first and most important step is to develop training material. The success of many 'trainers' has been measured by kilograms of training material produced over a certain period of time (kg TM/t or kg sec<sup>-1</sup>). A recent IA & IB study shows that the training material developed for labour-based roadworks in Sub-Saharan Africa could at least fill 26.8 % of the potholes in the same area (although the material may not meet the required standards for filling potholes). However, being a consultant who gets a good part of his income from producing training material, I would be the last person to recommend not producing any material. But the reduction of training to producing materials is definitely the wrong approach.

What could we do better to improve training?

- include pedagogical experts for the training design (involve the chef when you prepare the menu)
- give much more attention to the selection of trainers and to the training of trainers (not every gourmet is also a chef)
- make sure that training material does not become the objective of the training programme, but is

used as a training aide only (you can't eat the cooking recipe book - well you can, but...)

- give much more attention to the delivery of training (reading the recipe is one thing, cooking another)
- give training material producers not only the responsibility of developing material but also of running the courses (writing the recipe book might be a glamorous job as paper is very patient, but actually preparing the meal is certainly a difference matter)
- implementation of road works requires good practical personnel - therefore give training a practical bias and use the theory to make the practice simpler and easier, (a T-bone steak prepared in a marinade of hot theory is certainly not the taste of every labour-based project practitioner).



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## Project News



Project news is based on contributions from various field personnel in the respective countries. Thank you for all your letters.

### Botswana

Labour-intensive road construction and maintenance has continued in accordance with annual plans; but an advance assessment of production data appears to indicate that the targets forecasted for new or rehabilitated road lengths may not be attained for the reporting period ending this year. Labour-intensive maintenance of roads may also fall somewhat short of planned accomplishments.

The major constraints in the labour-intensive roadworks programme is, for the time being, an acute shortage of labour, which again is rooted in an anomaly in the wage structure for casual labourers, not significant in the past, but which is now becoming increasingly important.

In today's situation, the daily wage paid to labour-intensive roadworks is only marginally greater than what may be earned by working in the Government-supported relief programmes. This limited differential was in the past sufficiently attractive to the casual labourers to attract them to road construction and maintenance works, but the inflationary effects over the last seven years have seriously eroded this advantage.

A wage rate review for labour engaged in labour-intensive roadworks, which would also take account of the inherent differences between a road construction programme and a relief programme, has been initiated and the results of this exercise are expected shortly.

Within the labour-intensive roadworks programme, various approaches are being considered to the problem of provision, at acceptable costs, of wearing courses with selected material on roads in the Kalahari sand areas.

Within the labour-intensive roadworks, programmes, various approaches are being considered to the

problem of provision, at acceptable costs, of wearing courses with selected material on roads in the Kalahari sand areas.

These difficulties are centered on the general unavailability of almost any material other than more sand; and the resulting complications in trying to extract and transport substantial quantities of whatever may be utilised as surfacing material over long distances at reasonable costs. Water for compaction purposes may be equally scarce.

The annual District Roads Conference, arranged for the District Road Unit staff with particular reference to all aspects of labour-intensive roadworks will be arranged later this year; it is expected that the results of the labour wage review will be available at that time.

Training programmes for labour-intensive supervisory staff are progressing according to plan, with the Districts receiving an increasing share of the graduates from the central Roads Training Centre in Gaborone; some of the more urgent requirements of the Roads Department are beginning to be satisfied. NORAD was unable to replace Ørnulf Strøm at the Field Training Unit in Molepolole and this institution is now being run, firmly; by Jacob Raphalane. NORAD has recently offered a shortlist of candidates for the two centrally located labour-intensive road engineering positions in the Ministry of Local Government and Housing.

H Berger, MolGH, P O Box 41213, Gaborone

## **Kenya**

Important staff movements have recently taken place in the Roads Department. Samson Akute has now been appointed the Acting Chief Engineer (Roads). The position of Chief Superintendent Engineer (Unpaved Roads) has now been assigned to P P Ilovi who was Senior Superintendent Engineer (Design).

The Roads Department has also recently announced that a significant reorganisation of the Unpaved Roads Branch will take place as from July 1994, the start of the 1994/95 financial year. This reorganisation will set out to cater for a change of emphasis in future maintenance practices on all unpaved classified roads. The main features of the proposed new HQ structure provide for two sections charged with full responsibilities for maintenance operations on 55,000 kms unpaved roads, one East one West. These operational sections will be supported by four specialised management/technical units; a Planning Evaluation and Monitoring Section; a Contracts Development and Management Section; a Bridges Section; and a Mechanical Services Section. The existing organisation structures at Provincial/District Level are also scheduled to realign over a transition phase to accommodate the strategic objectives of Roads 2000.

The new organisation structure will focus on all necessary transitional steps in moving the present emphasis of individual project specific road programme, as under the donor- supported labour-based Rural Access Roads/Minor Roads Programme, to a network approach under the umbrella of the Roads 2000 strategic initiative. The objective of this initiative remains to provide full maintenance coverage on the classified road network by the year 2000, utilising local resources and labour-based methods wherever these are cost effective.

At a policy level, the Roads Department also envisages significant change in its workload and funding provisions during the coming financial year. Preparations are in hand for undertaking and expanded scope of maintenance work programmes utilising funds from a new domestic fuel levy. The final details of the proposed new fuel levy are yet to be announced by the Government of Kenya.

A wide range of studies are also under preparation within the Roads Department. The findings and recommendations of these will ultimately be consolidated into a Strategic Plan for the entire Roads Sector. It is recognised that the Strategic Plan to be adopted could have far-reaching implications on the future operations of the Roads Department.

M Broadbent, MoPW&H, c/o Grabowsky & Poort BV, P O Box 43271 NAIROBI

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## LESOTHO

With the assistance of SIDA, KfW, EU and the Government of Ireland, the LCU has planned to construct 70 km of rural roads to gravel standard during 1994 using six construction units. The terrain type for the roads earmarked for construction varies from lowland to mountainous rocky.



In line with LCU's Localisation Programme, four Basotho engineers joined the LCU after successfully completing their engineering course in the UK. At present they are working as counterpart engineers to the four expatriate-held positions, namely Regional Engineer and Planning

Control Engineer. It is the hope of the department that the Basotho Engineers will take over the positions by the end of 1994.

Mr. Samson Addo Teye, Assistant Training Engineer (UNV), completed his assignment and left Lesotho in March 1994. Training of the existing and newly recruited technical staff was outlined by LC as one of the means of improving the quality of the roadwork. For this reason, LCU has constructed a Training Centre in TeyaTeyaneng, some 45 km, north of Maseru. The Training Centre was constructed with financial assistance from SIDA. The centre has an administrative block, teaching block, dormitory for 16, kitchen, dining room and stores block. The centre commenced work in February 1992. On 2 may 1994, training started for fifth batch of trainees (sixteen trainees).

This twenty-week course covers both theoretical and practical aspects on constructing roads using labour-based techniques.

In September 1993, the LCU started introducing contractors for use on road works, i.e. routine maintenance and regravelling works. The first group of selected contractors (twelve) have successfully completed their theoretical and practical training on routine maintenance. At present they are undergoing their practical training on regravelling. It is planned that the contractors will be ready to take work from the LCU by July 1994. D Sahle, LCU, P O Box 301, Maseru, 100

## Malawi



With the launching of the UNDP 5th Country Programme and the recruitment of a rural transport economist for the Transport Planning Unit of the Department for Economic Planning and Development, the rural transport component has officially started. The component consists of three projects: 1. The Pilot Integrated Rural Transport Project which has developed (But is still working on) a simplified planning methodology which facilitates the prioritisation of interventions by District Planners in an objective manner. At the moment the project is executing the following interventions. a) Promotion of Intermediate Means of Transport, by testing out Credit Systems to issue IMTs and by training artisans in the construction and maintenance of IMT b) improvement of tracks, footpaths and footbridges on a self-help basis (draft guidelines are written and the first gang leaders and lengthmen trained) c) influencing location planning of facilities and services and influencing interventions beyond the scope of the project 2. The Pilot Motorized Rural Transport Project which is planned to start soon will promote the leasing of trucks to be used for carrying passengers and goods and to be operating only in the rural areas. 3. The Village Access Roads and Bridges Assistance Unit (VARBAU III) which has started in the Southern Region where it has started to construct about 68 km of road and 12 concrete bridges, mostly on a self-help basis. VARBAU has already covered the Northern and Central Region.

It is hoped that the component will as a whole assist in addressing the access problems of the rural people in Malawi. E Tssegai, UNDP, P O Box 30135 Lilongwe 3

## Mozambique



The Feeder Roads Programme is implemented by the Ministry of Construction and Water through the National Directorate of Roads and Bridges (DNEP).

The programme aims at strengthening the Government's capability at central and provincial levels to plan, programme and implement feeder road rehabilitation and maintenance works using labour-based methods, thereby contributing to the Government's overall objective of strengthening the agricultural sector by improving access to rural areas.

The programme commenced in January 1992 with a duration of five years. The ILO provides technical assistance through a team of six experts, five UNV's and 25 cooperates, financed by ASDI, UNCDF and UNDP. Capital assistance to the programme is provided by a consortium of donors from Sweden, Germany, Switzerland, the European Community, WFP and UNCDF, hopefully to be joined shortly by ODA.

There have been a number of changes in personnel recently and the current team consists of Construction Advisors John Bizios and Ted Greenhalf, Training Advisor James Markland, Mechanical

Advisor Luis Prada; UNV's Rizal Libre, Koko Blessing and Rosa Gil and Cooperantes Carlyle de Souza, Kyaw Htwe Myaing, B K S Patternaik and Julian Gumabon. Construction Advisor Bjørn Persson has recently completed his contract and John Clifton has very recently arrived as CTA to replace Mukesh Gupta who has been transferred to Sierra Leone.

The current hot issues are the integration of the Feeder Roads Programme into the very large scale Roads and Coastal Shipping Project (ROCS - 2) funded by World bank, delays in clearing equipment and goods into the country, and the below-capacity functioning of the labour-based brigades in 1993. We have recently enjoyed visits from missions from World Bank, ILO Geneva and ASIST and hopefully the initiatives suggested during the course of these missions will solve some of these concerns.

However, despite all the problems a total of 18 labour-based road rehabilitation brigades are functioning in eight provinces and a total of 637 km of secondary and tertiary roads have been rehabilitated with training of counterparts, on-the-job training of mechanics, plant operators and formal courses for site supervisory staff. J Clifton, ILO c/o UNDP, P O Box 4594, Maputo

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## **Namibia**

The department of Transport, with support from SIDA and the ILO, started the first phase of labour-based road construction in November 1991. Due to numerous inception problems, the 14 km road was not completed until August 1993. In December 1993, Justin Runji from Kenya joined the Department of Transport as the National coordinator for labour-based roadworks.

A second and final pilot phase was started in April 1994. The Department intends to contract most of its labour operations. The aim of the second phase is to confirm and consolidate the positive attributes and to refine those methodologies yet unclarified and to correct the impediments experienced in phase I. The department also intends to devise a strategy for contracting out work in the subsequent expanded phase.

The second pilot phase is being managed by a Namibian consultant, BICON Namibia, who also carried out the initial training of the field staff. The consultant has provided three site personnel-a site Engineer, a site Technical and a site Administrator. The project road is divided into two sections, 9 km, long each. Although it is a bit early to comment on the progress to date, it may be worthwhile mentioning that the labour recruitment procedure adopted is a combination of household approach and secret balloting. Problems being experienced include delays in processing of wages, specifications for wearing course material, construction water and communications to site.

The second section of the project road is programmed to commence in June 1995 and will essentially be a contractor training operation. In its expanded phase, labour-based works will initially be concentrated in the northern parts of the country where about 50 % of the population live. J Runji, MoWTC, Private Bag 12005, Windhoek

## **Tanzania**



*URT/91/MOZ/N90*

With the arrival of Per-Erik Winberg, the CTA of ATATAP, the team is



now complete. Mr Winberg will be based in Dar es Salaam and works within the Ministry of Works, Communication and Transport (MWTC) as an advisor at the Appropriate Technology Unit (ATU) within the Rural Roads Section (RRS). The ATATAP's main target is to train MWTC personnel in labour-based technology for force account work and supervision of contractors.

During a workshop organised by the MWCT, with participants from MWCT HQ, regional Engineers Office in Tanga and Mbeya, National Construction Council (NCC), NORAD and ILO, the whole programme was reviewed. The outcome of the workshop was a confirmation of the original programme with some changes like:

- the MWCT will appoint Senior Engineers at ATU in Dar es Salaam and at ATTI in Tanga and Mbeya, who will manage the institutions and advisory services provided by the ILO experts
- the Regional Engineer Office's responsibility will be limited to supplying trainees and providing appropriate training sites.
- The first training has started in Lesotho with 11 trainees from five different Regional Engineer Offices. Mbeya has planned to start its first course in the first half in June.

Several different programmes with labour-based road rehabilitation and maintenance components are being discussed in Tanzania at the moment. It is too early to know how some of them will be set up and the linkage between them is even more uncertain. ATU will play a role in this collaboration with UNDP (National Income Generation Programme), KfW (Bufferzone project) and United Nations Capital Development fund (Mwanza Programme).

#### *Project URT/90/004*

The ILO/NCC Contractor Training Project which aims at training private contractors to execute labour-based road rehabilitation and maintenance contractors has to date trained twelve contractors for the Kilimanjaro region. Ten out of the twelve trained contracts have successfully progressed through the trial contracts phase and are currently executing works for the Regional Engineer. The project is now being replicated in Shinyanga Region where it is also envisaged to train a total of 12 contractors in two batches by July 1995.

#### *URT/91/MAI/NAD*

The ILO Engineer, Zecharia Ali, who was assisting the REO in the rehabilitation of the Ntendo-Muze road (RUDEP) in Rukwa Region, completed his assignment in March 1994 and returned to Ethiopia.

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## **Rural Transport**

The ILO organised on 26th May a one-day workshop on Integrated Rural Transport/Accessibility Projects in a number of other developing countries. The ILO is developing guidelines on Integrated Rural Accessibility Planning. The intention is that these guidelines in the future would be used by District Engineers and projects for planning of rural transport intervention in Tanzania. Some districts are already about to embark on rural transport initiatives as part of the Village-level Travel and Transport Programme (VTTP).

Ørnulf Strøm took up his new post as a Labour-based Associate Expert Adviser in July. He will operate

out of the ILO Area Office in Dar es Salaam, as part of the ASIST team. W van Esch, ILO-Dar.,  
P O Box 9212,  
Dar es Salaam

## Uganda

### MOWTC

A Donors Conference was held in Kampala on 21st February, 1994. The conference was organised by the Ministry of Works, Transport and Communication (MOWTC) with assistance from the World Bank. The main objective of the conference was to seek donors' assistance for the four-year maintenance programmes of the prioritised main roads to be carried out between financial year 1994/95 and financial year 1997/98. The donor funding arrangement for maintenance is said to be an interim measure which relieves the Government over the medium-term period of Budget restructuring. At the end of its deliberation the conference has reached consensus on:

1. The size of the maintenance programmes
2. The contribution of donors
3. Contribution of Government

The conference brought together 44 participants including 17 representatives of the Donor Community and 27 Government officials.

Since January 1993 the Ministry has let 5,000 km of road out to contract and plans to expand this to 8,000 by the fall of this year. This fast expansion is said to be necessitated because of Government policy which requires ministries to do away with group employees by the end of the year

In addition to the maintenance activities, the ministry has carried out a substantial amount of development work with the introduction of Road Maintenance Guidelines, the printing of a purpose made works contract, and the running of an introductory training course for district engineers.

Wages for maintenance workers, up to now, were entirely covered from the regular Government budget.

Preparation is under way for a maintenance workshop due to take place in the ministry within the next two months. The main objective of the workshop is evaluating the performance of districts in the implementation of the main road maintenance of the main road maintenance programme of the current budget year. It is also expected to come up with concrete recommendations for strengthening the contract maintenance activities in the whole country. The workshop is intended for senior engineers at the headquarters, District Engineers and other officials of the Ministry.

### MOLG

#### Restructuring

Discussions are currently taking place about the possibilities of restructuring the Ministry of Local Government's Engineering Department in line with the current policy of decentralisation. In one possible scenario, the ED will cease to exist. Instead, there will simply be an engineering department within MOLG, with reduced mandate covering only planning and monitoring functions. All responsibility for implementation, including procurement, would be taken by the affected districts.

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## Projects



The ADA-funded Feeder Roads Maintenance project finally started in May, 1994, with the arrival of the Team Leader, Mr Mike Taylor. The project covers 24 districts and in the first phase its focus will be on the procurement of transport equipment and strengthening of district accounting. The cost of the project is estimated at US\$40 million.

The Feeder Roads Rehabilitation and Maintenance components of the Ugandan Transport Rehabilitation is

due to be launch in early September, 1994. The procurement of consultants and construction equipment is currently underway as part of the pre-implementation programme.



## Uganda Veterans Assistance Programme:

It is understood that, in high-level discussion between KfW and GoU, an agreement has been reached that a programme of assistance to veterans will include country-level participation by various veterans in labour-intensive road maintenance activities in the Districts of Jinja, Iganga, Tororo, Pallisa and Mbale.

Irish Aid is studying the possibility of supporting the labour-based feeder roads rehabilitation and maintenance activities of Kibaale District. Draft project documents prepared by Irish Aid are being discussed with District officials. Planning, Monitoring and Design Division (PMDD) in the MOLG has been instrumental in assembling the background data.

## Staff Movement

Mr Hamish Goldie-Scott, who has been MOLG Transport Planner since March 1993, is due to Uganda at the end of June, 1994. The planning, Monitoring and Design division will then be merged with other functions within the proposed Engineering Department. Continued Technical Assistance in the form of management Support is envisaged. A Kinadu, c/o UNDP,  
P O Box 7154,  
Kampala,

## Zambia

John de Blaquiére is very ill and we wish him a speedy and full recovery.

## Zimbabwe

### Rural Feeder Roads Pilot Project

This three-year DANIDA project is due to finish in July this year and the current assessment is that it has achieved its objective in demonstrating the technical feasibility of the technology. A feasibility report of a six year, two-phase expansion is under discussion with the Ministry and the donor agencies

(DANIDA/SIDA). Meanwhile two SIDA projects continue with further funds already committed into the first expansion phase.

Since an agreement for the new project cannot be signed before an Appraisal of the proposals is completed - and this awaits the comments of the interested parties - there will be an inevitable disruption of the activities and delay in fielding a new technical assistance team. Given that there is also little committed support among senior engineers in the Ministry for the labour-based approach, we hardly have the ideal environment for a new project with the loss of continuity and momentum. Haven't we heard all this before somewhere?

Fortunately there is growing enthusiasm and support for the technology among decision makers and local communities and this should lead to new initiatives within, for example, the Rural District Councils who are responsible for the mahor part of the rural roads network. ASIST's move to Harare should help in fostering a new approach.

Meanwhile Jon Hongve and Peter Bentall are preparing to leave their advisory posts and are definitely open to offers!

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# ASIST

ADVISORY SUPPORT INFORMATION SERVICES AND TRAINING FOR LABOUR BASED PRACTITIONERS

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## COMPETITION

Can you identify the owners of these heads?



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