ASIST Asia Pacific

….Mainstreaming Poverty Reduction Strategies…. 

Integrated Rural Accessibility Planning (IRAP)

Second Expert Group’s Meeting
Contents

Background 3
Introduction ........................................................................................................................................ 3
The History of IRAP in the Asia-Pacific Region ............................................................................. 3
The Purpose of the Expert Meeting ................................................................................................. 5

Part 1: History of Country Applications 6
Philippines ....................................................................................................................................... 6
Laos ................................................................................................................................................ 9
Cambodia ....................................................................................................................................... 12
Malawi ........................................................................................................................................... 15

Part 2: Workshop Sessions 18
Country Presentations .................................................................................................................. 18
Sectors ............................................................................................................................................ 19
Indicators ....................................................................................................................................... 21
Comparative Analysis .................................................................................................................... 21
Mapping ......................................................................................................................................... 27
Monitoring and Evaluation ........................................................................................................... 27
Closing Session .............................................................................................................................. 28

Part 3: Main Workshop Conclusions 29

Part 4: Annexes 31
Background

Introduction

Integrated Rural Accessibility Planning (IRAP) comprises a set of planning procedures that look at access, transport and mobility from a broader perspective. IRAP is a tool for rural infrastructure planning that is used by local Governments and development organizations alike. It promotes community participation and the optimum use of local resources including labour.

All households, rural and urban, poor and rich, need to have access to facilities, goods and services in order to fulfill their basic, social and economic needs and be able to live a social and economic productive life. Consequently, a lack of access is a major contributing factor to poverty and improving accessibility is one of the main strategies in the fight against poverty.

IRAP is concerned with improving levels of accessibility in rural areas. It defines accessibility as the ease or difficulty for rural folks to satisfy their access-related needs. It comprises a set of planning procedures and techniques that cut across sectors and can be used at the local government level for spatial access planning and at the village level for personal access planning. The procedures and techniques respond to the real access needs of the rural population, which include access to potable water supplies, primary health care, education, land, markets and the transport system.

The interventions that emanate from the planning process relate to improving people’s access. This would mean either through improving people’s mobility or by bringing the goods and services closer to the people. The first is done through improvements in the rural transport system, which includes rural road improvements, upgrading of village level transport infrastructure (footbridges, footpaths etc.) and improvement of low-cost means of transport and transport services. Access however can also be improved through a better siting of basic facilities such as water supplies, health centers, schools and markets.

Rural access needs and transport problems are not uniform throughout a country. The identification of interventions to improve accessibility is best done at the local level on the basis of understanding local conditions. IRAP has therefore been developed as a local level planning tool and provides the opportunity for an effective participation by the local governments and rural communities involved. In identifying priority interventions, the process aims to balance and maximize 1. the use of local resources including labour, 2. socio-economic impact and sustainability and 3. local participation.

The History of IRAP in the Asia-Pacific Region

Research work on rural transport, initiated by the ILO in the early 80s, was brought together in a book “Rural Transport in Developing Countries” published in 1985\(^1\). This book was important in that it marked a new approach towards rural transport in general and induced a rural transport planning discipline “Integrated Rural Transport Planning” or IRTP.

Initially the objective of IRTP was to identify transport patterns of rural households and identify their transport needs. The key features of IRTP were:

---

\(^1\) Rural Transport in Developing Countries – Ian Barwell, Edmonds, G.A., Howe, J.D.G.F. and de Veen J. (London 1985) Intermediate Technology Publications
the starting point of rural transport planning should be the real transport needs of the rural people;

in identifying interventions to improve rural transport one should consider the following options:

- the development of the road network;
- improvement of the village level transport network including paths, tracks and footbridges;
- development of transport services
- increased use of IMT

The follow-up work done during the late eighties on the different aspects of rural transport was eventually integrated and two pilot projects were formulated. One for two areas in the Philippines in 1989 in order to develop an Asian perspective and a second for three areas in Malawi in 1991 in order to develop an African perspective. Although sharing the overall goal of improving rural accessibility, the two projects had somewhat different objectives, strategies and activities. In the Philippines the main emphasis was on developing a decentralized access planning methodology and capacity building for access planning at the local Government level. In Africa the emphasis was less on capacity building and more on identifying, implementing and pilot-testing interventions to improve rural transport.

In early 1990, the experts working with the pilot project in the Philippines agreed that the original objectives of the exercise had changed and that the scope of the pilot project had become wider. They therefore decided to replace the African acronym (IRTP = Integrated Rural Transport Planning) with a new acronym (IRAP = Integrated Rural Accessibility Planning). The initiation of the IRAP pilot project soon attracted the interest of the Government, which supported the expansion of the process, particularly because of its relevance to the new policy of decentralization. A set of guidelines was produced in 1994 to guide practitioners through the IRAP process as developed in the Philippines.

The IRAP project in Laos, as an off-spring of the Philippine project, started in August 1995. The IRAP process was modified after pilot-testing it in two Lao provinces. Although the principles are the same, the IRAP process in Laos substantially differs from the Philippine process to better conform to the Lao situation. Recent research and development has further contributed to improvements in the process.

Also in 1995, a pilot project started in Indonesia to assess the potential of IRAP being applied in the Indonesian context. This pilot project comprised the application of a modified process in 2 selected areas and an assessment of its results and IRAP’s potential.

IRAP Cambodia started in May 1999 under the Ministry of Rural Development assisted by the ILO Labour-based Rural Infrastructure Works Programme. Project activities started in Siem Reap province and a modified process was successfully implemented in the first few pilot districts.

Proposals have been developed to further initiate/strengthen IRAP activities in Nepal, India, Bangladesh, Vietnam and Indonesia.

---

2 Various research studies in Africa and Asia plus the Makete Rural Transport Programme in Tanzania as the main operational programme on rural transport
3 Aurora Province and the Cordillera Region
4 Guidelines on Integrated Rural Accessibility Planning – Geoff Edmonds, Chris Donnges and Nori Palarca (Manila 1994) ILO
The proven strength of IRAP is that with minor modifications it easily can be adopted to the existing planning environment in most Asian countries. The purpose of this technical note is to compare the different procedures and identify similarities and differences. Special attention will be given to the different linkages between planning and (labour-based) implementation of public and community works.

**The Purpose of this Expert Meeting**

The main purpose of this meeting was to bring together a group of experts practicing IRAP to discuss and compare different applications in different countries. Four country teams and backstopping technicians from Philippines, Laos, Cambodia and Malawi (Africa) attended the meeting. The immediate objectives of the workshop were:

1. Discuss differences and similarities between country applications (Philippines, Laos, Cambodia and Malawi (Africa));

2. Review alternatives to, if necessary, improve the planning tools in the existing IRAP country programmes (Philippines, Laos, Cambodia);

3. Assess if it is possible to develop a more generic IRAP tool to be introduced in new possible programmes (Nepal, Vietnam, Indonesia, Bangladesh, India, and Thailand).

The workshop, comprising 14 participants, was held on 5-6 September at the Swiss Park Hotel in Bangkok, Thailand. The first IRAP Expert Meeting, comprising 21 participants, was held on 26-27 October 1997 at the Local Government Engineering Department (LGED) in Dhaka, Bangladesh.

The workshop explained how the different IRAP activities were implemented in different countries and highlighted essential differences. Selected substantive issues such as indicators, data collection, mapping and monitoring and evaluation practices were discussed. It was not the purpose of this workshop to come up with “a best or perfect model” or the reach consensus on a particular model. The main aim was “explanatory” in the hope that improved communication and an exchange of ideas between different projects and programmes would have mutual benefits.

This report describes the workshop proceedings. It comprises four parts. Part 1 summarizes the history of the different country applications. Part 2 describes the outcome of the discussions and workshop sessions. Part 3 draws the main conclusions emerging from this workshop. Part 4, the annexes, include the different materials presented during the workshop.
Part 1: History of Country Applications\textsuperscript{5}

Philippines

The Context

IRAP started in 1989 in Aurora, a remote province in the Northern Philippines. Working with the Provincial Planning and Development Office (PPDO) and the EU supported “Aurora Integrated Area Development Programme” (AIADP) under the Department of Agriculture, the ILO started studying rural household’s travel patterns and transport demands. In the same year, a similar activity was initiated in collaboration with another EU supported project “Central Cordillera Agriculture Programme” (CECAP) in Ifugao and Mountain Province.

Both undertakings developed a database on socio-economic, access and transport characteristics along with an inventory of the road and trail network in the areas. Household survey and village key informant questionnaires were developed and pilot tested in a politically unstable environment. Computers had already found their way to the mountains and the collected data was stored by the PPDOs using Lotus 1-2-3. A framework for data analysis was developed and the raw data was used in a first attempt to produce province-wide action plans for improving rural transport and accessibility. The local responses to this first IRAP application were generally very positive.

In 1990, the ILO submitted a project proposal to US-AID to seek financial assistance to further develop the procedures into a provincial planning tool and pilot-test its application in 4 provinces: Capiz, Camiguin, Agusan del Norte and Romblon. This project proposal was developed in collaboration with the National Economic Development Authority (NEDA) and the Department of Interior and Local Government (DILG). The Philippine Government expressed interest in developing the experiences within the context of decentralization and the project moved physically from DA to DILG. US-AID funded the project in late 1990 and a Rural Transport Unit (RTU) was created within DILG’s Bureau of Local Government Development (BLGD).

The US-AID project ran for two years. A first version of a comprehensive and integrated planning process was developed applied and modified. A real boost for the project came when President Aquino approved the Local Government Code and decentralization became law. Local responsibilities and budgets increased drastically and a real need for local level planning tools emerged.

A new proposal for wider application and refinement was prepared and submitted to the Dutch Government. The Dutch Government started funding the project in November 1992 and will continue doing this until December 2002. The Dutch assistance was divided into three phases. The main characteristics are summarized below:

\textsuperscript{5} Although Indonesia did not participate in the expert meeting, the Indonesian experience is briefly described in Annex 2.
Table 1: Dutch Assistance to IRAP Philippines

<table>
<thead>
<tr>
<th>Phase</th>
<th>Objectives</th>
<th>Coverage</th>
<th>Institutional Arrangements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992-1994</td>
<td>a) Ensure that IRAP is adopted as a planning strategy</td>
<td>DILG and 9 provinces in Regions 6, 10 and 11</td>
<td>Project was based in BLGD and worked directly with the PPDOs</td>
</tr>
<tr>
<td></td>
<td>b) Establish training capacity on IRAP</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Develop sustainable capacity to apply IRAP as a standard planning tool</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1995-1999</td>
<td>a) Promote application in 4 regions</td>
<td>DILG, 3 Regional DILG Offices and 15 additional provinces primarily in Regions 2, 6, 10, 11 and 13</td>
<td>Project was based in LGA (Local Government Academy) and worked directly with Regional DILG Offices and PPDOs and MPDOs</td>
</tr>
<tr>
<td></td>
<td>b) LGUs to develop and implement projects based on IRAP priorities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Develop capacity with the training arm (LGA) of DILG to provide technical assistance and training</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) To convince both local policy and decision makers on the usefulness of IRAP</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e) To develop training capacity in regional Universities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f) Operationalize a national IRAP data bank</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000-2002</td>
<td>a) Institutionalize the use of IRAP as a local level planning tool in all local government units (LGUs)</td>
<td>DILG, All Regional DILG Offices and all 78 provinces</td>
<td>Project is based in main DILG and partnership with LGA, BLGD, Office of project Service (OPS) and DILG database management unit</td>
</tr>
<tr>
<td></td>
<td>b) Develop a procedure that uses accessibility information in monitoring poverty reduction programs and projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Provide a sound basis for regional and national development and investment plans</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Improve and refine IRAP procedures to increase its responsiveness and appropriateness to particular local conditions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The process of institutionalizing IRAP in the Philippines has been a cumbersome one. The project has been at pains convincing the DILG that it was worth endorsing the process even though the results at local level and feedback from the IRAP covered provinces was always extremely positive. It has taken ten years and only now, anno 2000, it seems that this will finally happen. The project has been upgraded within the DILG and full time counterparts and financial resources will be made available. In addition, IRAP responsibilities will be written into the job descriptions of regular DILG staff and there is a movement to have the IRAP process endorsed by Administration to become a standard planning tool.

The Process

IRAP is primarily applied at the municipal level. The application of IRAP at this level is primarily through capacity building of the planning and technical staff of the Municipal Planning and Development Offices (MPDO). The process starts when DILG/IRAP central or regional staff conducts a hands-on training (T-1) in the province engaging planners from all the municipalities. This training includes modules on the IRAP concept and data gathering. After LGU officials have collected the necessary information in the barangays, PPDO staff at provincial level will enter the data using a pre-designed software package. Some time after the data has been stored a second training will be conducted (T-2) to assist the MPDOs to analyze the data and identify priorities in the following sectors: rural roads, water supplies, fuelwood, schools and health centers. A follow-up training (T-3) on project packaging has been developed but has not yet been conducted. The final
outputs of the exercise to date include local capacity to apply IRAP, a municipal data-base, a list of priorities for 5 sectors, a set of maps showing the existing access situation and identifying priority barangays by sector and local chief executives informed about the access situation and access priorities in their areas of jurisdiction.

The IRAP application in the country is described by the following diagram:

**Diagram 1: The IRAP Process in the Philippines**

Steps 1-5 deal with generation and analysis of existing access conditions (Situational Analysis) in the study area. These will enable the identification and prioritization of access problems and guide the planner as he proceeds to Step 6 to set realistic and attainable targets within the limits of the LGU’s resources and capacity. Step 7 calls for the formulation of interventions which may require bringing the services closer to the people through the siting of additional facilities, or enhancing mobility through the construction and/or upgrading of roads and the introduction of transport systems. The steps cited above will facilitate the identification and prioritization of programs and projects in Step 8, that will address the access needs in the sectors covered.

Steps 1-8 are normally undertaken by the local planning office. However, decisions to plot the area’s development direction are decided upon by other people. The planners, although they are not decision-makers, are in the best position to influence decision-making with their findings and recommendations. They should thus be able to effectively convey the information they possess to the parties concerned. This is to be achieved in Step 9 in the IRAP application.

The presentation to the decision-makers aims for the inclusion of the accessibility programs and projects in the Development Plan (Step 10). This will provide the assurance that the proposed projects are considered for implementation. Funds from the LGU’s budget can thus be allocated (Steps 11-12) to finance the programs and projects.

Funds can also be sought from outside sources. Project proposals are prepared by the LGUs (Step 13) for submission to interested donors and NGOs operating in the area. Once the proposals are approved, project implementation (Step
can commence. Results of monitoring and evaluation (Step 15) activities regarding the impact of the projects will be considered to determine whether the targets are attainable or some adjustments are needed to make them responsive and realistic.

**Laos**

**The Context**

The UNDP support for the development of IRAP in the Lao People’s Democratic Republic (Lao PDR) started in July 1995. Field activities commenced in late 1995 in three pilot provinces: Oudomxai, Louang Namtha and Savannakhet. The project established an office in the Transport Planning Unit under the Ministry of Communication, Transport, Post and Construction (MCTPC). A full-time National Project Director was assigned to the project at the national level and local counterpart teams were established in the 3 provinces.

The national Technical Assistance Team (TAT) started to assist MCTPC to modify the IRAP training programme to adapt this to the Lao context. Local Government officials in Lao were not yet exposed to bottom-up planning processes and decentralization and the implementation of IRAP needed a different approach compared to, for example, the Philippines. Full-time technical assistance staff was initially assigned to the project provinces to work closely with the local IRAP teams to gradually transfer knowledge and guide the local counterparts step-by-step through the process. Local counterparts had to become familiar with computers, working with foreigners, English, and data collection and planning procedures.

The IRAP process was implemented on a district by district basis and training courses were organized for individual districts. Occasionally two districts were combined especially once the local counterparts gained more experience and confidence. During the first year of implementation all training materials, questionnaires and guidelines were translated in the Lao language and modified as soon as the need arose.

In 1996, the IRAP process was extended to the village level. It was agreed that UNDP Bangkok would finance a pilot project to extend the process to the village level and to develop and pilot test a community participatory approach for rural infrastructure development. This work was done in close collaboration with ESCAP. The activity resulted in a process, which had an increased participation by the beneficiaries in the planning, design and implementation of priority infrastructure works. It strengthened the entire IRAP process in that village participation became more pronounced.

The entire IRAP project in Laos was new in its approach and implementation. The fact that it directly worked at the local level with provincial and district counterparts and with the villages and brought together a multi-disciplinary team was well appreciated by the Lao Government. As a result of its initial success, project activities were extended to 5 more provinces in 1997 with UNDP and Swedish funding.

In 1997 the project moved to the newly create Rural Development Committee under MCTPC. It was now covering half of the country and had established a large TAT and involved over 40 full-time local counterparts. Of particular help were the many United Nations Volunteers and Associate Experts directly associated with the project and a team of young local professionals trained during the first few years of project implementation.

During the period 1997 to 1999 the project concentrated on the following activities: further research and development of accessibility planning and infrastructure development procedures;
implementation of the IRAP process in the 8 project provinces, strengthening capacity for planning at the local level and collaboration with government and donor agencies to increase the implementation of access priorities.

An external project evaluation in 1998 recommended to the donors to continue their assistance to the IRAP programme beyond 1999 and extend the programme into a second phase. UNDP hired a consultant to look into different options for institutionalizing IRAP at the national level. For all its achievements, the project team had yet been unsuccessful in consolidating the IRAP process and institutionalizing the IRAP procedures at the national level. The UNDP assessment identified three possible future development directions for the IRAP process:

- To have more of a transport focus.

  The first option was to limit the areas of focus to transport related issues such as rural road and rural transport planning, prioritization of transport interventions, feasibility studies, transport network inventories, traffic counts, impact evaluations etc..

- To have more of a district/decentralization focus.

  This option would turn IRAP into a local level capacity building tool focussing on improving rural accessibility in its broadest sense. The main activities would comprise the strengthening of the district level capacity to identify geographical priority areas for access interventions and to identify priority project intervention to address access problems.

- To have more of a rural development focus.

  The last option would expand IRAP activities into other sectors. The IRAP process would have to be broadened to become a general rural development tool dealing with more than access planning alone. It was recommended to use this enhanced process in conjunction with Government and donor supported area development programmes.

UNDP continued funding the development of IRAP in the year 2000 with the objective to develop a second phase in the year 2001. Additional donors to co-finance the continued application of IRAP in the country at the time of this writing still need to be found. Sida however has expressed a certain degree of interest.

It is obvious that the process of institutionalization and sustainability of planning practices takes time. The results of four years of continued application are positive but more effort is needed to ensure a future application on a large scale.

A first promising sign of institutionalization has been MCTPC’s recent decision to create a new local road division and transfer the project team to this division to institutionalize IRAP as the tool for rural road planning. A future role for the IRAP process in rural road development in Laos seems to be secured.

The Process

The IRAP process is carried out at the village, sub-district (a cluster of villages), district and provincial level. The whole process starts with an initial training course for provincial and district staff on data collection and accessibility mapping. Diagram 1 illustrates the major steps when applying the procedures:
Step 1: involves the collection of access data through rapid rural appraisal and a simple road inventory;

Step 2: includes the development of a data bank;

Step 3: involves the preparation of accessibility profiles;

Step 4: results in a prioritized list, which allows the planner to identify where a particular intervention is most needed. The choice can then be made whether access will be improved by locating a service closer to the people or improving the road network;

Step 5: includes the identification of objectives and strategies and the setting of targets;

Step 6: involves the formulation of the investment plans as the next logical step in the cycle. These plans lay the foundation for a program of work. Rural access however can only be improved if projects are actually implemented;

In order to actually improve rural access the project also puts forth effort to take the process a stage further by linking the pilot provinces to donors.

Step 7: therefore seeks to enhance the communication skills of local staff to present and justify identified priorities to any potential donor: Government, non-government or foreign.

Step 8: involves the actual implementation of projects; and

Step 9: comprises monitoring and evaluation. Once identified projects are being implemented the IRAP project will strengthen the capacity to monitor implementation and assist the authorities in making an assessment of the impact of the interventions.
The management of the IRAP process preferably is the responsibility of local Government, with direct technical and managerial support from a national IRAP unit, in turn, supported by the ILO. The process therefore should respond to the needs of local Governments and should be in line with existing planning procedures to increase its acceptability.

**Cambodia**

**The Context**

IRAP activities in Cambodia started in May 1999 as a separate activity under the MRD/ ILO Upstream Project. Pouk District in Siem Reap Province was selected as a first area to demonstrate the use of the IRAP process.

In May 1999, ILO fielded a Technical Assistance Team (TAT) to adapt and modify the process and establish local capacity to use it. Local government officials were trained how to analyze the situation in their district, how to prioritize and how to identify investments. The TAT guided this process at local level and in about 4 months time an Accessibility Action Plan (AAP) was written to complement existing area development plans and to guide rural infrastructure development in the area.

The December 1999 Policy for Rural Roads prepared by MRD states that “The Ministry of Rural Development will encourage the use of integrated rural accessibility planning as the principle tool to guide investments to increase rural access”.

The MRD also organized a national forum in February 2000 to present the Pouk AAP and to promote the IRAP approach in general. Representatives from all provinces were invited and attended the meeting in Siem Riep.

These are promising signs of acceptance, recognition and ownership of the IRAP approach and show that, as a result of past investments, in a relatively short period of time, outputs can be produced of sufficient quality to demonstrate the comparative advantage of the approach and to convince senior politicians to endorse the process.

**The Process**

The process in Cambodia is slightly different from the IRAP application in other countries. Its typical characteristics are the focus on rural transport and road planning and the action plan orientation. The final output is indeed an integrated action plan with investment projects and a budget.

The whole process starts with a Transport Infrastructure Inventory (TII), which is basically an inventory of the existing road and waterway network. Local officials subsequently verify this inventory in a first District workshop. Participants in this workshop also assess the importance of

---

7 Ministry of Rural Development
8 This Employment Intensive Investment Programme (EII) designed by the ILO was initially launched in 1992 with the support of a group of donors as a large infrastructure rehabilitation and development project implemented by the ILO in the northern provinces of the country based on labour-based technology. Donors provided important financial assistance from the very beginning and have collaborated closely since. In the initial years (1991-1993) the project operated quite autonomously until the national election established a new government. In 1993 the project relocated to work with the Department of Public Works, Agriculture (Irrigation) and Arts and Culture (Angkor). With Government reorganization the project eventually moved its roads sector operations to the new Ministry of Rural Development in 1995. The project will be operational until 2001.
roads in development in order to comprehend the importance of road access for rural areas. The outcome of the TII workshop will be incorporated into the final version of the TII maps.

After having completed the TII, the IRAP teams go back to the communes to collect more specific information on accessibility and transport. Village representatives are gathered at commune level to provide the information required. This information is afterwards used in a second District workshop to calculate indicators and identify access priorities. Diagram 3 shows the IRAP process as being developed in Cambodia.
Diagram 3: The IRAP Process in Cambodia

IRAP PLANNING CYCLE

**TRAINING MODULES**

**T1: Data Collection**
- Primary data gathering
- Secondary data gathering
- PRA techniques
- Manual Mapping
- Transport Infrastructure Inventory
- O/D Surveying

**T2: Data Analysis**
- Data Management
- Thematic manual mapping
- GIS mapping
- Indicator building
- Prioritizing
- Priority Accessibility Profile writing

**T3: Investment Planning**
- Investment identification
- Participatory village construction
- Cost estimation based on Labour-based Appropriate Technology
- Accessibility Plan Writing
- Plan Presentation
- Plan integration

**T4: Impact assessment**
- Accessibility impact assessment
- Village Surveying
- Household case studying
- Rapid Assessment of Poverty Impact (RAPI)
A third District workshop is conducted with the objective of analyzing accessibility problems, using a problem tree/objective tree method of analysis, and identifying investment priorities. The final information resulting from this workshop is then used to write a draft AAP. This draft AAP is written by the IRAP team. This plan combines the results of the technical analysis with the aspirations of the participants. The draft plan is finally presented and finalized in a fourth District workshop. Once agreed, commune leaders and district officials will approve the plan, which will complement existing development plans for the locality. The MRD will use the plan to guide the investments that will approve the accessibility of rural communities to basic needs, goods and services. It is intended to attract additional donor funding to support and complement MRD’s efforts to alleviate poverty.

The Cambodia IRAP model, in a way, is the most complete model presently being used in the Asia region. It follows in fact an earlier attempt in the Philippines to develop an IRAP process with an action plan as the final output. One of the main challenges in the future will be to have the local people prepare their own action plans instead of having the more central IRAP teams produce them.

**Malawi**

**The Context**

The ILO has been involved with the development of IRAP in Malawi since 1991 initially through the Pilot Integrated Rural Transport Project (PIRTP) and more recently through ASIST Africa. PIRTP operated in three pilot areas: Neno in Mwanza District, Lobi in Dedza District and Embangweni in Mzimba District. The project:

- Developed a sustainable planning methodology for improving infrastructure and access to social and economic services;
- Strengthened the capacity of Government and local authorities to plan and implement rural access programmes; and
- Defined an integrated system to bring a substantial and sustainable increase in the use of intermediate means of transport.

The experience gained through this project has paved the way for the planning methodology to be replicated in all districts in Malawi. This pilot project has also contributed to the development and formulation of a rural transport policy for Malawi.

More recently, the ILO has supported the Department of District and Local Government Administration in the Office of the President and Cabinet in the conceptualization, development and production of the Integrated Rural Accessibility Guideline for Malawi. The IRAP Process is now fully integrated into local level planning practices and is fully supported by the Malawi Government. Occasionally ILO continues to provide technical backstopping from its regional ASIST office in Harare.

**The Process**

IRAP consists of a number of activities starting from Data Collection to Monitoring and Evaluation:

---

9 This section is based on the joint ILO/Republic of Malawi publication “A guide to Integrated Rural Accessibility Planning in Malawi (2000)”. 

---
Data collection (step 1) is the first exercise. Enumerators hold interviews with key-informants of target villages in the district, using a questionnaire that contains questions on accessibility in all sectors, like drinking water, agricultural marketing, health, education, etc. It collects data on the existing transport, travel and access problems and prioritises possible interventions for improvement.

Data Processing (step 2) involves data encoding and processing into a computerised database.

Date Analysis (step 3) of the encoded data will lead to specific information on access in all sectors. The information can be grouped for different administrative levels. Tables and graphs help the users to interpret the results.

Mapping (step 4) assists visualisation of the accessibility situation. Combining maps and overlays of different sectors will help to identify the best possible solutions to achieve integrated and cost-effective access interventions.

Validation workshops (step 5) are held to verify the data analysis output and to formulate and discuss the access problems and priorities and to identify interventions with the representatives of the Village Development Committees (VDCs).

Compilation of Access Profiles (step 6) is done following collection of the access information after verification in the workshops.

The combinations of the output from the analysis and the maps form a profile of the accessibility of an area. An Area Accessibility Profile will include ranked villages and VDCs for each sector. The Profile furthermore provides descriptive information on facilities and services.

The most urgent accessibility problems, as perceived by the people themselves, are listed. Preliminary solutions suggested by the villagers are also mentioned. The 'objective' numerical (access) ranking is compared to the more 'subjective', perceived problems and proposed interventions.

Setting Accessibility Targets (step 7) is the next step in the process. Having identified accessibility problems in each sector and across sectors, realistic targets and objectives at local level are defined.

Prioritisation and Formulation of Interventions (step 8) is the next logical step in addressing accessibility needs at both area and district level. The district authorities can pro-actively formulate proposals or alternatives to village proposals that go beyond the scope of individual villages or VDCS. It is now possible to relate this assessment to district and sector targets.

Implementation (step 9) is the stage in which the proposed interventions (projects), identified in the Prioritisation Process, are included in the overall district development projects and ready for implementation. IRAP in Malawi is introduced as a tool that can enhance and complement the District Development Planning System. Integration of the IRAP contributes to having a participatory method to assess the needs of the rural population. Planning becomes more effective and efficient.

Monitoring and Evaluation (step 10) is the final step in the IRAP cycle. Feedback is required to improve the effectiveness of all steps in IRAP and the results of interventions have to be assessed against the defined targets and objectives and the intended outcomes.
Part 2: Workshop Sessions

The workshop started with an official welcome by the ASIST-AP CTA. This was followed by an introduction by the ASIST AP senior development planner who has, at the regional level, responsibility for backstopping and developing IRAP activities in the Asia-Pacific region. His presentation focussed on:

- The past, present and pipeline IRAP activities in the region;
- The generic IRAP process and some key differences between the Philippine, Lao and Cambodian process;
- A recent SWOT analysis undertaken by an independent consultant; and
- Technical focus areas and possible directions for the future\(^\text{10}\).

The transparencies used during this presentation are reproduced in Annex 3.

Country Presentations

On this first day, the country representatives gave an overview of the process and its application in the 4 different countries represented in the workshop: Philippines, Laos, Cambodia and Zambia (Africa). The materials used during the different country presentations are annexed as Annexes 4-10. The history and application of IRAP in the different countries is extensively described in Part 1 of this report. The rest of this section identifies some key characteristics that came out of the different presentations:

**Philippines**

- The emphasis on institutionalizing IRAP as a mainstream planning tool;
- The emphasis on data-base development activities at the national and regional level with the objective to influence national (regional) policies;
- The effort to incorporate gender issues by looking into the social aspects of accessibility;
- The inclusion of the energy sector;
- The link with DOLE at the local level.

**Laos**

- The institutional position and move towards the road sector;
- The implementation of micro projects (see Annex 7)\(^\text{11}\);
- The focus on a limited number of sectors.

**Cambodia**

- The fact that IRAP has grown out of a Labour-based ILO project;
- The focus on rural roads and rural transport;
- The use of participatory group-work at the commune level\(^\text{12}\) to collect data and the use of specific tools such as the transport infrastructure sheet, route-use network exercise and asset infrastructure inventory;

---

\(^{10}\) One of the participants remarked that one possible area for future expansion not identified on the relevant sheet should be the urban expansion.

\(^{11}\) The presenter could not reach Bangkok in time to participate in the workshop. However his planned presentation has been included as Annex 7.

\(^{12}\) A commune is one level up from the village and comprises a number of villages.
The preparation of District Accessibility Action Plans.\footnote{This has long been proposed as a T-4 activity and is in different stages of development in different countries.}

Africa

- The different country focus on policy, planning and implementation;
- The role of ASIST Africa in the absence of country projects;
- The different activities in 9 African countries.

Malawi

- The detail with regard to mobility issues;
- The emphasis on time savings in the identification and ranking process.

The short discussion after the country presentations focussed on the factors explaining the differences between different IRAP applications and the question whether it makes sense have a generic IRAP blueprint. Factors for different country applications included:

- Differences in country GDP and development level
- Different backgrounds and positions of local level planners
- Different levels of decentralization (local government funding)
- Different coverage of IRAP
- The role of donors

The overall consensus emerging from the discussion was that since so many different variables shape the most feasible and appropriate application in a country, maybe we should not have a generic IRAP but more of a flexible local level planning systems that evolves around the concept of access.

Sectors

During the country presentations it appeared that different sectors were covered in different countries. The main objective of this session was to make a country inventory of the sectors covered\footnote{Coverage was defined as collecting information and using this information one way or the other to identify priorities.} and a discussion on why coverage differs. The following table summarizes the different sector coverages.
Table 2: IRAP Coverage by Country

<table>
<thead>
<tr>
<th>Philippines</th>
<th>Laos</th>
<th>Cambodia</th>
<th>Malawi</th>
</tr>
</thead>
<tbody>
<tr>
<td>water</td>
<td>water</td>
<td>water</td>
<td>water</td>
</tr>
<tr>
<td>health</td>
<td>health</td>
<td>health</td>
<td>health</td>
</tr>
<tr>
<td>education</td>
<td>education</td>
<td>education</td>
<td>education</td>
</tr>
<tr>
<td>fuelwood</td>
<td></td>
<td></td>
<td>fuelwood</td>
</tr>
<tr>
<td>electricity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>markets</td>
<td>markets</td>
<td>markets</td>
<td></td>
</tr>
<tr>
<td>livelihood</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>agriculture/fisheries</td>
<td></td>
<td>fields</td>
<td>grinding mills</td>
</tr>
<tr>
<td>roads</td>
<td>roads</td>
<td>roads</td>
<td></td>
</tr>
<tr>
<td>transport services</td>
<td></td>
<td>water transport</td>
<td></td>
</tr>
</tbody>
</table>

There appears to be a distinguished variance in sector coverage. Although most countries collect some data on most sectors\(^{15}\) this data is not always effectively used for sector planning purposes and it was debated during the discussion that if certain data is not being used by the project/application it should not be collected in order to save on scarce resources and to minimize the interview/data collection requirements. It seemed that the Cambodian model “consumed” the least amount of data.

The discussion also focussed on the Irrigation Sector, which is of immense importance in many Asian countries. Why did none of the country applications plan for the irrigation sector? Although the Lao and Cambodian version of IRAP collected some information on irrigation, this was not effectively used for planning purposes. Amongst the reasons identified for non-inclusion are:

- It seems technically difficult to use the IRAP model for small scale irrigation planning;
- Irrigation matters are usually handled by separate departments and agencies and not the usual departments the IRAP teams are working with.

A consensus on whether or not to include irrigation was not reached. There was a strong argument however that if it is our ultimate goal to alleviate poverty through improved accessibility the irrigation sector must definitely be included.

Other potential sectors not yet covered under IRAP included forestry, cultural facilities and shelter.

---

\(^{15}\) See for example Annexes 11 and 12.
Indicators

The Accessibility Indicators are a significant and controversial tool in the IRAP application. It appeared during the different discussions that the countries are using different formulas to calculate the indicators. Annexes 13, 14 and 15 include the sheets used during some of the country presentations. Accessibility indicators are used to prioritize villages for water, education, health projects in all countries and for improving access to markets in all countries but Laos. A different combination of indicators is used to prioritize roads\(^\text{16}\). The following points were observed during the different presentations on indicators:

- Philippines and Malawi are using the most simple indicators, which are just a function of two variables: people and travel times;
- Laos and Cambodia are using more complex indicators composed of 5-10 different variables;
- Different sector coverage of indicators. Cambodia, Laos and Philippines all calculate indicators for water, health and education, Cambodia and Philippines use indicators for transport infrastructure, Cambodia uses indicators for markets and Philippines uses indicators for energy/fuelwood;
- Village perceptions are included as a variable in only Cambodia and Laos;
- Only Cambodia calculates an integrated village indicator;
- Only in Cambodia are the indicators been discussed with village representatives;
- Both the Philippines and Cambodia are considering the use of planning standards and norms (Minimum Basic Needs requirements) in the calculation of indicators.

Consensus on which indicators to use was not reached during the discussion. This will require extensive research and more technical discussions in the future. One important conclusion agreed upon however was that accessibility indicators alone are not enough to set priorities and/or to identify interventions. Indicators should be used in combination with other planning practices such as the use of graphical tools.

It was decided that the Cambodian team would select one data set and apply the 3 different formulas to see how different procedures affect the ranking of communities.

Comparative Analysis

Day 2 started with a comparative analysis of the IRAP application in the 4 different countries based on the following matrix which was developed during day 1.

\(^{16}\) Roads are a solution to an access problem and require a different methodology for identification and prioritization.
## Basis for Comparison

IRAP Coordination Meeting, Bangkok  
September 5-6, 2000

<table>
<thead>
<tr>
<th>Item</th>
<th>Philippines</th>
<th>Laos</th>
<th>Cambodia</th>
<th>Malawi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Status</td>
<td>Phase 3, covering the whole country, OD w/new partners, 2.5 years to go</td>
<td>Transition to phase II, 9 months to go</td>
<td>Organizational dev’t expansion 1 yr, 4 months; 18 mos. To go</td>
<td>Post project completion, whole country, on-going</td>
</tr>
<tr>
<td>Policy basis</td>
<td>Local Gov’t Code</td>
<td>Road sector policy, govt. dev’t policy</td>
<td>Rural road policy, MRD 5-yr plan</td>
<td>RTT policy, decentralization, poverty eradication</td>
</tr>
<tr>
<td>Goal</td>
<td>Socio-econ dev. Poverty Alleviation</td>
<td>Improve living conditions of rural communities</td>
<td>Improve living cond. In rural areas</td>
<td>Cont. to reduction of rural poverty</td>
</tr>
<tr>
<td>Objectives</td>
<td>Improve, refine, apply IRAP to be basis for dev’t/investment plan at all levels. Dev/test pov. Reduction, M&amp;E tool</td>
<td>Develop prov’l, district planning capacity</td>
<td>Dev. Cap. MRDP/PDRD to plan for improved access in rural areas</td>
<td>Improve rural access, strengthen govt cap local gov. for planning access interventions</td>
</tr>
<tr>
<td>Focus of application</td>
<td>Cap. Bldg at national, regional, provincial and municipal levels, data banking, networking, policy advocacy</td>
<td>Planning Cap. Bldg at central, provincial, district and village levels</td>
<td>Planning capacity at national/prov’l levels</td>
<td>Improve rural mobility, build and strengthen cap of local gov.</td>
</tr>
<tr>
<td>Client / target beneficiary</td>
<td>DILG national, regional, NEDA and SUCs, prov’l planners and tech staff, DILG, (do for municipal) For policy advocacy, govt agencies, LGUs</td>
<td>Central, provincial, district planners and technical staff in the water, health, education and road sectors</td>
<td>Policy makers and development planners, engineers at national and provincial levels</td>
<td>District planners and rural communities</td>
</tr>
<tr>
<td>Item</td>
<td>Philippines</td>
<td>Laos</td>
<td>Cambodia</td>
<td>Malawi</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------------------------------------------------------</td>
<td>-------------------------------------------------------</td>
<td>----------------------------------------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Project’s institutional address</td>
<td>DILG Central and regional Division of Local Roads,</td>
<td>Division of Local Roads, MCTPC at national level;</td>
<td>PDRD and Min. of Rural Dev’t</td>
<td>District Planning System</td>
</tr>
<tr>
<td></td>
<td>MCTPC at national level; Province and district Dept.</td>
<td>Province and district Dept. of Planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>of Planning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decision-making level of application</td>
<td>Municipal and provincial governments</td>
<td>National with feedback from provincial and district</td>
<td>District and provincial levels</td>
<td>Central and local government</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategies for TA delivery</td>
<td>TOT, Trainors/provincial experts</td>
<td>National and provincial trainors, experts in provinces</td>
<td>OJT, TOT, training, study tours, local and</td>
<td>TOT, ASIST technical and advisory support</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>international consultants</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time frame of IRAP application in one</td>
<td>T1 - 2 days Data collection at village level – 4 hrs;</td>
<td>T1 – 3-5 days Data collection – 30 days/district</td>
<td>Application in 1 district – 78 days; Prep/coordination</td>
<td>3-4 months for the pilot IRAP application in 1 districts of 964 villages; currently takes less time to apply as it is now institutionalized</td>
</tr>
<tr>
<td>planning unit (province or district)</td>
<td>2-4 mos. Ave/ prov. Info Sys – 2 days T2 – 4 days (average 509 villages/ province)</td>
<td>(100-150 villages) 12 mos/prov. Data validation – 2 days; Data encoding – 1 month T2 – 5 days T3 – 5 days Computer training – 1 year English training – 1 year</td>
<td>T1, T2 and T3; data gathering, encoding, etc. (ave. 72 villages in a district)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resources needed, exclusive of counterpart costs</td>
<td>$12,750 / province ($55 / village)</td>
<td>$150,000 - $200,000 /province ($175 / village)</td>
<td>$104,000 / province (including everything)</td>
<td>$35 / village exclusive of international inputs (96 costings)</td>
</tr>
<tr>
<td>Source of funds</td>
<td>Dutch government</td>
<td>SIDA and UNDP, Dutch and French Gov't, ESCAP</td>
<td>SIDA, Dutch and Ireland</td>
<td>Gov’t, UNDP and ASIST</td>
</tr>
<tr>
<td>Item</td>
<td>Philippines</td>
<td>Laos</td>
<td>Cambodia</td>
<td>Malawi</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>------</td>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td>Sectors covered</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data requirement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source of data</td>
<td>Primary – key informants at village level; Secondary – agency reports, National statistics</td>
<td>Primary – key informants at village and district levels;</td>
<td>Secondary data – commune inventory data base, EMIS, Census Primary – key informants at village and commune level and districts officials</td>
<td>National statistics for secondary data; Key informants for primary data; household</td>
</tr>
<tr>
<td>Techniques for data generation</td>
<td>Key informant interview, panel discussion at village level, walk-through for mapping</td>
<td>Key informant interview at village level; random sampling at household level</td>
<td>Key informant interview, manual mapping, GPS, work group techniques</td>
<td>Random sampling at household level; group interviews at village dev. Com-mittee, gov’t records</td>
</tr>
<tr>
<td>Data processing procedure</td>
<td>Use of IRAP Information System (FoxPro), encoding at provincial level</td>
<td>Use of Access and MapInfo, AutoCad</td>
<td>MS Access, MapInfo and Excel</td>
<td>SPSS, Maps</td>
</tr>
<tr>
<td>Data analysis procedure</td>
<td>Use of Accessibility indicators for ranking, simple ranking system, graphical analysis (maps)</td>
<td>Accessibility indicator and maps, scoring and ranking, graphical analysis</td>
<td>Indicators, maps, GIS and manual</td>
<td>Use of Accessibility indicators for ranking, simple ranking system, graphical analysis (maps)</td>
</tr>
<tr>
<td>Gender</td>
<td>Integr. into data collection manual, gender module, inclusion of womens rep. Into key informants, incl. Of womens’ NGO in decision makers pool, gender indicators into poverty reduction M&amp;E tool</td>
<td>Gender research, women’s repr. In key informants, at community level planning sex dis- aggregation</td>
<td>Promotion of women representation in decision making, socio-economic studies (HH surveys on travel patterns), Origin and Destination studies use dis-aggregated data</td>
<td>Integration into data collection, analysis and evaluation and project formulation</td>
</tr>
<tr>
<td>Item</td>
<td>Philippines</td>
<td>Laos</td>
<td>Cambodia</td>
<td>Malawi</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>----------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Learning Institutions</td>
<td>15 State Universities and Colleges (as members of regional trainer pool, integration of IRAP into academic and extension programs), Material from CLSU exists</td>
<td><em>Not at this time</em></td>
<td>Institut de Technologie de Cambodge (curriculum already developed)</td>
<td>University of Malawi (initiative for integration into curriculum on rural development planning)</td>
</tr>
<tr>
<td>Information interpretation responsibility</td>
<td>Provincial and municipal planners</td>
<td>Provincial and district planners, IRAP counterpart and project staff</td>
<td>Provincial planners, district officials and commune representatives</td>
<td>District planners and development officers</td>
</tr>
<tr>
<td>Information presentation</td>
<td>Summary lists, tables, graphs and maps, municipal ADBs</td>
<td>ADB books, district profiles, road network books, provincial summaries, priority books, maps</td>
<td>Manual maps, district accessibility profiles, accessibility action plan, GIS maps</td>
<td>District profile, tables, maps, graphs</td>
</tr>
<tr>
<td>Use of outputs</td>
<td>Presentation to decision makers, integration into the annual investment plans of LGUs, identification of access improvement interventions preparation of project proposals</td>
<td>Presentation to decision makers, donors, NGOs, concerned departments</td>
<td>Identification of new roads, maintenance; integration into the provincial plan, presentation to sectoral departments (health, education, water resources) and fund-raising tool</td>
<td>Presentation to government decision-makers at district and central, donors, and other development agencies, formulation of project proposals</td>
</tr>
<tr>
<td>Users of outputs</td>
<td>Planners at municipal, provincial, regional and national, decision-makers at the same level, concerned gov’t and NGOs, donors and funding institutions</td>
<td>Concerned sectors, districts, projects at district level, MCTPC, donors and consultants, and other interest groups</td>
<td>District governor, commune representatives, planners (PRDC), PDRD, int. org., NGOs, others</td>
<td>Planners at District and Central level, donors, UN agencies, NGOs</td>
</tr>
<tr>
<td>Item</td>
<td>Philippines</td>
<td>Laos</td>
<td>Cambodia</td>
<td>Malawi</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-----------------------------</td>
<td>----------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Collaborative work</td>
<td>League of Provinces, NAPC*, PESO/DOLE*, Mun. Solar Infra., Project of DILG, NEDA</td>
<td>Provincial, District DCTPC, DOP and health, education, water, UNDP, WB LSRSP, SESMAC, INDISCO, SIPDEV, ESCAP.</td>
<td>GTZ, ANS, APSARA, CONCERN, Halo Trust, WFP, ADB,</td>
<td>Line ministries at District level, WFP,</td>
</tr>
<tr>
<td>Networks</td>
<td>League of Local Planners, Phil. Communicators, Donors Forum, IFRTD/NFG*</td>
<td>Network of Provincial IRAP Teams, IFRTD*</td>
<td>IFRTD, Water and Sanitation Coord.Group, Cambodian Rural Transport Forum</td>
<td>IFRTD, NFG*</td>
</tr>
<tr>
<td>Options for collaboration</td>
<td>PAGF/AusAid, ADB, EU, MRDP (WB), LB-ES (InfraCom)</td>
<td>Sida, EU, WB, ADB, UNDP</td>
<td>Sida, New Zealand, Canada, WB, ADB, EU, Group, Social Fund</td>
<td>EU, Malawi Social Development Fund, UNICEF, CARE</td>
</tr>
<tr>
<td>Problems encountered</td>
<td>1. readiness of counterpart (re-training), 2. involvement of tripartite partners, 3. convergence between MBN and IRAP</td>
<td>1. institutional position, 2. staff capacity and number, 3. no established planning system, 4. funding for 2nd phase, 5. sustaining IRAP process, 6. synchronize with annual development planning cycle, 7. loss of staff to others</td>
<td>1. counterpart selection, 2. absence of planning system, 3. incomplete decentralisation, 4. donor driven planning systems, 5. main-streaming vs. short term donor commitment, 6. synchronize with annual development planning cycle, 7. loss of staff to others</td>
<td>1. Inadequate human and financial resources, 2. Coordination between line ministries, 3. Slow implementation of decentralization policy</td>
</tr>
<tr>
<td>External factors/Issues</td>
<td>1. elections in 2001, 2. security in the South (ARMM), 3. new policies limiting LGU autonomy</td>
<td>1. copying of IRAP by others.</td>
<td>1.</td>
<td>1. government staff turn-over (loss of capacity)</td>
</tr>
</tbody>
</table>
After completing the table and a quick analysis the 2 following conclusions were drawn:

- It clearly showed that the difference in IRAP applications are primarily based on non-technical factors such as different Government, donor, counterpart and TA interests, needs and priorities.
- It also illustrated that the selection of sectors to be included in the IRAP process was more determined by the institutional setting and local situation than by the overall accessibility needs of rural households (research).

The main conclusions from the comparative analysis are processed in the general workshop conclusions in Part 3 of this report.

A separate discussion focussed on how to prioritize between sectors. Some participants believed that this would not be possible at all. Others came up with the following 2 suggestions:

1. Let the communities decide and prioritize between sectors at the community level with community involvement (this would be very much a community participatory planning exercise, which could build on the Lao experiences with AIC for example or the Cambodian practice of involving communities at the commune (i.e. sub-district) level);
2. Compare sector indicators with established planning standards and norms (this is more in line with a Minimum Basic Needs approach).

**Mapping**

Mapping has always been an important instrument within the IRAP tool-box. All countries train local staff to produce manual maps presenting the village (population) distribution, existing infrastructure, access needs and priorities. In Laos and Cambodia the mapping process has been computerized and is increasingly being developed as a powerful tool for data presentation and planning. Both country applications use MapInfo software. Cambodia presented how they have developed and use computerized mapping as a planning tool. Annexes 16 to 19 present some more details on this subject.

**Monitoring and Evaluation**

The last session was on Monitoring and Evaluation. ASIST-AP presented some of the work that was done in the region on this subject (see Annex 20). In addition, all of the country projects, to a certain extent, have a mandate to monitor access improvements in-country and develop procedures for impact evaluation. A lively discussion unfolded on how to best evaluate impacts of access improvement projects. The following issues were raised:

- Savings in travel time are an important element in the process of assessing benefits. There was disagreement during the discussions on whether the savings in travel time should be valued in monetary terms or just quantified as time savings only;
- Disagreement on whether travel time savings could be used as a proxy for the overall impacts of access improvement projects;
- How to value time savings;
A general consensus that travel time savings alone are not enough and that at least, as in common transport evaluation practice, changes in travel time, travel cost, travel frequency and travel mode should all be assessed;

Indicators and procedures for assessing impact of access improvement projects should be similar in all countries;

The possibility to relate impact to target setting to see whether access improvement projects have an impact by measuring the decreasing gap between the actual situation and a desired situation.

Environmental benefits of access projects should be included if one wants to do a comprehensive impact assessment.

Time was not enough to satisfactorily conclude this session and more work is needed in the future to develop a quick and effective procedure for measuring impacts of access interventions.

**Closing Session**

The workshop ended with some closing remarks from the ASIST CTA, the Geneva representative and the ASIST senior development planner. It was hoped that the sharing of information and discussions would eventually contribute to further improvement of the IRAP products both in ongoing and new IRAP applications in the Asia Pacific region and in Africa.

The opportunity was also used to introduce the new ASIST AP CTA who will have the overall responsibility for ILO’s ASIST programme in the region starting in January 2001.
Part 3: Main Workshop Conclusions

The main conclusions drawn from the two-day workshop are:

- Improving access is and should remain the main focus of the process.
- The different projects are in a different phase of development: initiating IRAP, applying IRAP nationwide, mainstreaming IRAP and maintaining the process.
- IRAP needs to be demonstrated in the field and it takes a fairly long time for IRAP tools to become “official” planning tools (7 years) although local adoption is usually fast.
- The policy basis is usually a decentralization act or a rural road/transport sector policy.
- The goal is unique: improving living conditions and poverty alleviation.
- IRAP is primarily a local level capacity building process to integrate access issues in local level planning practices.
- The main focus of application is the local level (planners and local sectoral agencies) although capacity is build at the regional and national level as well.
- Although there are significant differences between the different IRAP applications in different countries, there are more similarities and the overall process seems to be the same.
- The institutional address is either a ministry for local (rural) development or a transport (road) ministry.
- The TA needs for IRAP development are quite substantial.
- The time frame and resource requirement for different IRAP applications substantially differs (Philippine $55, Laos $175, Malawi $35 per village if the process is implemented on a large scale).
- IRAP initially depends on donor support. The main donors supporting the process/philosophy are Sida, UNDP, The Netherlands, Dfid and NORAD.
- The main differences are in the data collection methodology, inclusion of sectors, emphasis on transport and roads, use of indicators and use of computerized mapping.
- The differences in application are primarily the result of different country institutional characteristics and counterpart mandates.
- IRAP should not become “too generic”. One of the strength of the process is the flexibility to quickly modify to specific counterpart and local situations.
- Data collection methods differ and consequently the resource requirements for different data collection methods differ as well.
- Although the primary data collection exercise is generally comprehensive, not all data is used for planning purposes.

- Different software is being used for data base development.

- Different formulas are being used for calculating indicators. The use and formulation of indicators needs more research and development.

- Mapping is an important element of the IRAP application in a country. Using simple GIS software brings the process to a higher level and increases acceptance of the planning tools and results.

- The use of outputs, the presentation of information and the users are comparable across applications.

- The ideas about how to measure impact of access improvement projects differ greatly but it is necessary to develop one procedure that can be used everywhere.

- The importance to research the real access needs of the rural population before developing/applying IRAP in a certain country.

- Gender issues are addressed differently in different applications.

- The IRAP process is an excellent tool to foster co-operation between development agencies and sectors.

- Problems encountered during the development and application of IRAP and the external factors influencing the use and effectiveness of the process vary per country.
Part 4: Annexes

<table>
<thead>
<tr>
<th>Annex</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Workshop Agenda</td>
</tr>
<tr>
<td>2</td>
<td>Indonesia – IRAP Research Project</td>
</tr>
<tr>
<td>3</td>
<td>Asia-Pacific Region – The past, present and future of IRAP</td>
</tr>
<tr>
<td>4</td>
<td>Philippines – IRAP III Presentation</td>
</tr>
<tr>
<td>5</td>
<td>Laos – IRAP Presentation</td>
</tr>
<tr>
<td>6</td>
<td>Laos – Linking IRAP to the National Rural Development Programme</td>
</tr>
<tr>
<td>7</td>
<td>Laos – IRAP at the Village Level</td>
</tr>
<tr>
<td>8</td>
<td>Cambodia – IRAP Presentation</td>
</tr>
<tr>
<td>9</td>
<td>Cambodia – Project Profile</td>
</tr>
<tr>
<td>10</td>
<td>Malawi – IRAP Presentation</td>
</tr>
<tr>
<td>11</td>
<td>Philippines - Questionnaire</td>
</tr>
<tr>
<td>12</td>
<td>Philippines – Municipal Indicators (example)</td>
</tr>
<tr>
<td>13</td>
<td>Different Formulas for Calculating Indicators</td>
</tr>
<tr>
<td>14</td>
<td>Philippines – Accessibility Indicators</td>
</tr>
<tr>
<td>15</td>
<td>Cambodia – Accessibility Indicators</td>
</tr>
<tr>
<td>16</td>
<td>Cambodia – Mapping Presentation</td>
</tr>
<tr>
<td>17</td>
<td>Cambodia – Training Manual GIS</td>
</tr>
<tr>
<td>18</td>
<td>Cambodia – Examples of Maps</td>
</tr>
<tr>
<td>19</td>
<td>Laos – Use of GIS (example)</td>
</tr>
<tr>
<td>20</td>
<td>Impact Evaluation</td>
</tr>
</tbody>
</table>
AGENDA

First Technical IRAP Meeting
( 5 and 6 September)

Immediate Objective: Compare different applications with each other

Long-term Objective: Standardize the IRAP process
                  Improve the IRAP process

Meeting Principles: The process should be (technically) acceptable by Governments and donors
                  The process should remain simple and straightforward

Short presentation IRAP process in Philippines, Laos and Cambodia

The purpose of this activity is to familiarize oneself with the different applications in the different countries and to identify similarities and differences.

The discussion should focus on the differences. Why do we have different applications in different countries focusing hereby on training, survey, data processing/storage, data analysis, mapping, presentation, project identification and the coverage of the process.

IRAP Indicators

We are using different indicators in Philippines, Cambodia and Laos.

- Why?
- Are the old sector indicators (Philippines, Laos old) not acceptable?
- Are the new sector indicators (Cambodia, Laos new) too sophisticated?
- Should we combine sector indicators (to come up with a village indicator)?
- If yes, how can we do this in an acceptable and simple manner?
- For what purpose?

Impact Evaluations

There is a demand for a “rural access project’s impact” evaluation procedure. All three projects are or are planning to develop such a procedure.

- What are the different plans in different countries?
- How can we coordinate these efforts? Could different countries concentrate on different sectors?
- For credibility we need to have one standard procedure?
- Can we produce one overall procedure or do we need to develop different procedures by sector?
- Plan for action on this
Link Planning – LB/ES Implementation

Our success is eventually related to the number of projects implemented. For us to remain or become an important ILO activity, this has to be related to employment creation/income generation as well.

- What are the different project and country ideas/activities on this (see Philippine developments)?
- How can we strengthen the link with LB/ES implementation (see Cambodia set-up)?
- What about community participation?
- Should we or should we not develop this component further (see Lao experience) under the IRAP projects?

Mainstreaming IRAP

In Philippines, Laos and Cambodia, the time of pilot testing is over and we are mainstreaming the process. In other countries we will use these results to start up new activities.

- Does it make sense to mainstream IRAP? Why?
- How to ensure that IRAP does not become a parallel planning system?
- What are the country’s experiences?
- What are the main bottlenecks?
- What about sustainability, after the ILO will eventually pull out?
- What are the country’s Action Plans/strategies on this?

(I’m sure that there are other points and questions to be discussed but I hope that this agenda is acceptable to everyone and can be used to guide the meeting).
Indonesia

The Context

IRAP activities in Indonesia have been limited to research, pilot testing of a possible process and implementation in a few pilot areas. The Bandung Institute of Technology (ITB) in cooperation with ILO has implemented two research projects with the objective to develop an Indonesian variant of IRAP and assess its potential as a planning tool within the Indonesian context.

The first research project selected four pilot kecamatan, two in the Province of East Nusa Tenggara and two in the Province of West-Java. A project team developed a questionnaire based on the survey forms used in the Philippines and in Laos. Data was collected at desa level and processed and analyzed by the University.

The main conclusion of the research project was that the IRAP process as it was implemented in Philippines and Laos was not applicable within the Indonesian planning context. Indonesian villages were generally too large to apply the process at desa level. It was recommended to go one level down and apply the process at kampung level. This needed a second more refined research project incorporating the first experience and modifying the procedures and tools. A national workshop to introduce the IRAP concept originally planned for the end of the first phase was cancelled. It was generally felt that more experience was needed before presenting IRAP as an alternative planning tool for Indonesia.

A second IRAP research project started in 1998. This project was a continuation and improvement of the first research project. It modified the survey forms and re-applied the process at kabupaten and desa level but focussing on the kampung: the lowest level of settlement.

Primary data was collected through an improved questionnaire and data was validated by direct interviews. Secondary data was collected from the kampung village chiefs. The data was analyzed and the demand and supply of basic goods and services was assessed and accessibility was measured.

The IRAP process used in this second study was again based on the Philippine and Lao experiences. The research project conducted activities up to step 5 (identification of sectoral problems - see diagram 1). This time, the appropriate local government units within the selected pilot areas were involved from the beginning of the project. A task force set up by ITB took responsibility for project design, coordination, management and reporting.

The main conclusions that resulted from this work were:
1. IRAP is a planning tool that can be used at the local level (Kecamatan, Desa and Kampung\(^1\)) for improving access to basic infrastructure and services;

2. IRAP is a potential planning tool for improving rural development practice in Indonesia;

3. In its current format however it is unlikely that IRAP will be adopted as a new rural planning tool in Indonesia since an officially approved participatory rural development planning process (P3MD) already exists;

4. For IRAP to be used, central regulations need to be loosened up, people need to be trained and funds need to be allocated;

5. An alternative would be to use the IRAP tools in combination with the existing planning process, instead of having IRAP replacing it.

Based on these initial findings, the study finally recommends a strategic approach to come to an application of IRAP on a larger scale:

1. To run a full scale IRAP demonstration project in selected areas;

2. To train future trainers of local planning staff on-the-job; and

3. To organize dissemination seminars at the national level for organizations such as the national planning agency BAPPENAS, the Directorate General of Rural Community Development and the Directorate General of Regional Development.

National level government support is deemed necessary for the successful replication of IRAP activities in other areas.

In 1999, the Indonesian Department of Public Works and ILO proposed a three-year technical support programme to generate a wider and improved use of labour-based technology in infrastructure programmes. This programme proposes to use the IRAP tools, in tandem with the P3MD local planning programme, to identify priority infrastructure needs. The realization and implementation of this proposed programme would eventually advance the development of IRAP in Indonesia.

**The Process**

The UKAP Process developed in the two pilot projects more or less followed the Philippine example. Once IRAP will be replicated on a larger scale it is necessary to modify additional elements to better tailor the process to the Indonesian context.

---

\(^1\) A Kampung is a village in the Indonesian context. It is not a level of administration. The Desa is the lowest level of administration.
ANNEX

IRAP in the Asia
<table>
<thead>
<tr>
<th>Country</th>
<th>Past</th>
<th>Present</th>
<th>Future (Pipeline)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vietnam</td>
<td>IRAP Activities ITTransport</td>
<td>Possible Collaboration DFID RAP (2001)</td>
<td></td>
</tr>
<tr>
<td>Nepal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Country</td>
<td><strong>Strengths</strong></td>
<td><strong>Weaknesses</strong></td>
<td><strong>Opportunities</strong></td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>----------------------------------------------------</td>
<td>--------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Philippines| ➢ Easy Process  
➢ Objective process  
➢ Stakeholders “likes” indicators  
➢ Does not raise experience  
➢ Process is widespread | ➢ No impact evaluation  
➢ Weak sector links | ➢ LB/ES programme ongoing  
➢ Linking with other Gov’t programmes  
➢ Less prone to political interference  
➢ Central data bank for comparisons  
➢ Inter and intra-sectoral comparisons possible | ➢ Conflicting policy commitments  
➢ Village statistics need a lot of follow-up  
➢ No capacity building at village level  
➢ No data collection at HH level  
➢ Change in political power change programme |
| Laos       | ➢ Best data in country  
➢ Produces needed maps  
➢ Priorities can be used by other programmes  
➢ Methodological more advance than other planning tools  
➢ Big potential employment generation  
➢ Participatory process integrated | ➢ Confusing institutional position  
➢ Seen as parallel exercise  
➢ Lack of recognition  
➢ Seen as data collection exercise  
➢ Low implementation rate proposed projects | ➢ Different applications opportunity for best practices  
➢ Training useful for all planning functions  
➢ Project proposals can be used to source funding  
➢ Strengthen local level planning  
➢ Data collection for national purposes  
➢ Simple and easy to adapt to local conditions | ➢ Lack of coherence (different applications)  
➢ Too much data/planning compared to implementation  
➢ Fund insecurity  
➢ Donors prefer to use “own” system  
➢ Process seen as fund raising exercise |
| Cambodia   | ➢ Build on good reputation ILO  
➢ Funds for implementation available  
➢ LB methods well accepted | ➢ Not a comprehensive planning system  
➢ Targeting difficult  
➢ Short time frame | ➢ Use of secondary data speeds up process  
➢ Fill crucial gaps of other programmes  
➢ Use latest IRAP technology  
➢ Big donors in road sector have planning needs  
➢ Ability to integrate local level planning at district and provincial level | ➢ Other planning systems operational  
➢ Lack of own data creates dependence on other quality data  
➢ Ownership of roads will result in maintenance problems |
Intergrated Rural Accessibility Planning (IRAP) Project

International Labour Organization
Department of the Interior and Local Government
Royal Government of the Netherlands

IRAP III Components:
Training & Capability-Building
Databanking & Networking
Policy Advocacy

Application of IRAP in a Province

- T1 Training - 2 days, theoretical input on: data generation and processing, target setting, accessibility mapping, pre-testing of survey instrument
- Actual data gathering and encoding - 2-4 months
- T2 Training - 4 days, actual work on: data analysis, access problem/needs identification, prioritization of interventions, project identification, information packing and presentation

Application in:
78 provinces

Follow-through/Introduction to:
14 Selected Regional SUC

Introduction to:
Concerned government agencies & non-governmental organizations

NATIONWIDE APPLICATION OF THE INTEGRATED RURAL ACCESSIBILITY PLANNING PROCEDURE IN THE PHILIPPINES (IRAP II) PROJECT

T1 TRAINING PROGRAM

<table>
<thead>
<tr>
<th>Module Number</th>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>IRAP Introduction (Project, Procedure)</td>
<td>History Concept Application Process Outputs</td>
</tr>
<tr>
<td>I-A</td>
<td>Gender and Accessibility</td>
<td>Gender roles in the context of IRAP application</td>
</tr>
<tr>
<td>II</td>
<td>Access Improvements</td>
<td>Types of Access Improvements Exercise on Access Improvements</td>
</tr>
<tr>
<td>III</td>
<td>Access Planning and the Environment</td>
<td>Basic Concepts Framework for Understanding Video: Man &amp; His Environment</td>
</tr>
<tr>
<td>IV</td>
<td>Map Comprehension</td>
<td>NAMRIA Topographic maps Basic skills, understanding of topographic maps</td>
</tr>
</tbody>
</table>
### T1 TRAINING PROGRAM

<table>
<thead>
<tr>
<th>Module Number</th>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>Accessibility (Base) Mapping</td>
<td>Process</td>
</tr>
<tr>
<td>VI</td>
<td>Data Requirement</td>
<td>Data Needed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sources of Data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Techniques for Data Gathering</td>
</tr>
<tr>
<td>VII</td>
<td>Survey Instrument</td>
<td>Survey Forms (Barangay Accessibility Survey Form 1, Municipal Data Form 2,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Barangay Road Analysis Form 3, &amp; Municipal Road Analysis Form 4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intent of each question</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pre-testing of instrument</td>
</tr>
<tr>
<td>VIII</td>
<td>Tools of Analysis</td>
<td>Accessibility Indicator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Accessibility Mapping</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Frequency Distribution</td>
</tr>
<tr>
<td>VIII-A</td>
<td>IRAP Information System</td>
<td>Features</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Functions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Application</td>
</tr>
<tr>
<td>IX</td>
<td>Action Planning</td>
<td>Provincial action plans</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data collection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Monitoring</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IRAP Info System Training</td>
</tr>
</tbody>
</table>

### T2 TRAINING PROGRAM

<table>
<thead>
<tr>
<th>Module Number</th>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>Revisiting T1 Training</td>
<td>Review of T1 Activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sharing of Experiences</td>
</tr>
<tr>
<td>XI</td>
<td>Presentation / Validation of</td>
<td>Accessibility Data Base (ADB)</td>
</tr>
<tr>
<td></td>
<td>T1 Outputs</td>
<td>Base Map</td>
</tr>
<tr>
<td>XII</td>
<td>Analysis and Interpretation</td>
<td>Application of IRAP Analytical Tools</td>
</tr>
<tr>
<td></td>
<td>of Accessibility Conditions</td>
<td>Identify access needs/gaps</td>
</tr>
<tr>
<td>XII-A</td>
<td>Accessibility Map Preparation</td>
<td>Finalization of maps</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Base Map</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Priority Map</td>
</tr>
<tr>
<td>XIII</td>
<td>Addressing Accessibility Needs</td>
<td>Target Setting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identification and Prioritization of Sectoral Projects</td>
</tr>
</tbody>
</table>
T2 TRAINING PROGRAM

<table>
<thead>
<tr>
<th>Module Number</th>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>XIV</td>
<td>Packaging of Findings and Recommendation</td>
<td>Information Packaging Materials to be used during the presentation</td>
</tr>
<tr>
<td>XV</td>
<td>Communication and Presentation Techniques</td>
<td>Practical tips for the presentation</td>
</tr>
<tr>
<td>XVI</td>
<td>Dry Run of Presentation</td>
<td>Practice</td>
</tr>
<tr>
<td>XVII</td>
<td>Actual Presentation</td>
<td>Sharing of findings &amp; recommendation to the local chief executive, and other major stakeholders of local decision-making</td>
</tr>
</tbody>
</table>

IRAP PROCESS FLOW

1. DATA GATHERING
2. DATA ENCODING
3. COMPUTATION OF ACCESSIBILITY INDICATORS
4. ACCESSIBILITY MAPPING
5. IDENTIFICATION OF SECTORAL PROBLEMS
6. TARGET SETTING
7. FORMULATION OF INTERVENTIONS

9. PRESENTATION TO DECISION-MAKERS
10. INCORPORATION IN AREA DEV'T PLAN
11. PREPARATION OF PROJECT PROPOSALS
12. FUND SOURCING (INTERNAL)
13. SUBMISSION TO NGOs and DONOR AGENCIES
14. PROJECT IMPLEMENTATION
15. MONITORING/EVALUATION
PROJECT PREMISES

- ISOLATION IS A MAJOR DETERMINANT OF POVERTY IN RURAL PHILIPPINES
- ACCESSIBILITY IS NOT JUST DEFINED BY PHYSICAL DISTANCE BUT ALSO BY SOCIAL FACTORS THAT SHAPE PEOPLE’S OPTIONS, POSSIBILITIES AND LIFE’S OUTCOMES

SOCIAL DISTANCE

...Unlike Physical Accessibility, social accessibility is not influenced by kilometers or travel time but factors which shape peoples options and constraints...

...This includes gender, age and class
GENDER

Set of characteristics that a society or culture attribute to males or females.

Define roles, relations, place and entitlements of women and girls, of men and boys

GENDER & HOUSEHOLD RESPONSIBILITIES

...the burden of providing of Households key services or goods (water, good health and fuel wood) may fall on women more than on men...
CONSIDERATIONS IN SOCIAL (IN)ACCESSIBILITY

- Work and Division of Labour-practical constraints to participation in economy, education, etc.
- Value given to different types of work which affect entitlements of people to food and rest
- Importance given to investment in education or health
- Notions of what resources are required by men and by women

INTERVENTIONS FOR SOCIAL ACCESS

The same type as presented earlier with conscious effort to give considerations on:

Who needs what resources and facilities; and
Who needs to be released from the burden of difficulty in access
IRAP FOCUS ON BOTH PHYSICAL & SOCIAL ACCESS DATA

- Presence or absence of a service or facility,
- Distance of these facilities from population
- Amount of travel time to reach a resource or facility
- Household arrangement with regard to work and division of labour
- Value given to different kinds of work
- Importance given to investment in the education or well-being of boys and girls (women & men)
- Notions as to what resources/facilities women and men need for their productive and reproductive activities

Concept
IRAP KEY INFORMANTS

- BARANGAY CAPTAIN
- TEACHER
- HEALTH WORKER
- WOMEN’S ORGANIZATION REP
- MARKET VENDORS ASSOC. REP
- WATER ASSOC. REP
- ELDER & OTHERS

IRAP DATA REQUIREMENT

- General Characteristics
- Access Roads & Transport Services
- Water Supply
- Energy & Fuel
- Education
- Health and Social Services
- Agriculture
- Cottage Industry
- Markets
- Vehicle Ownership
IRAP DATA COLLECTION INSTRUMENTS

- BARANGAY ACCESSIBILITY SURVEY FORM
- MUNICIPAL DATA FORM
- BARANGAY ROAD ANALYSIS
- MUNICIPAL ROAD ANALYSIS

LOCAL DEVELOPMENT COUNCIL

- MAYOR (CHAIR)
- MPDO
- BARANGAY CHAIR
- COMMITTEE ON APPROPRIATION CHAIR
- CONGRESS REPRESENTATIVE
- NGOs
Outputs of IRAP Application

- Accessibility Data Base (ADB): Provincial and Municipal
- Accessibility Maps
- Prioritized list of access needs
- Prioritized list of access-improvement project
- Package of finding and recommendations presented to major actors of local decision-making

Coverage 1991-1999 (phase I & II)

Applied in:
- 25 provinces
- Selected municipalities in Region 12 and CAR

Introduced to 12 regional universities
Introduced to selected indigenous communities
Local Functionaries Trained on IRAP

IRAP- Identified Sectoral Projects
### Typical Access Improvement Projects

<table>
<thead>
<tr>
<th>Sector</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Planning for water schemes, construction of water reservoirs, development of water infrastructure.</td>
</tr>
<tr>
<td>Health</td>
<td>Construction of additional classrooms, health centers, supplies, and medical equipment.</td>
</tr>
<tr>
<td>Education</td>
<td>Construction of intellectual achievements, and school infrastructure.</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Construction of roads, bridges, and other infrastructure.</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Improvement of agricultural land, and tools.</td>
</tr>
<tr>
<td>Market</td>
<td>Construction of markets, and supply chains.</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Improvement of infrastructure in rural areas.</td>
</tr>
</tbody>
</table>

### Action Taken on Projects

![Graph showing action taken on projects](#)

**Series 1:** 
- CF: Construction of facilities
- AP: Assistance provided
- IP: Improvement of projects

- Percentage of action taken on projects.
Sources of Funds for Access-Improvement Projects
INTEGRATED RURAL ACCESSIBILITY PLANNING AND INFRASTRUCTURE FOR BASIC NEEDS

(IRAP), LAO/95/001

Summary of Findings of Post Evaluation

☐ Most trained personnel remained on office in spite two local elections;
☐ Majority of the trained personnel applied or are still applying the procedure;
☐ Some 72% of the projects IRAP helped identify have been implemented;
☐ Majority of the projects implemented used LGU funds;
☐ Very few of the LGUs tapped outside sources of funds
IRAP's Coverage

- LNYH, OUDXAI, SAVAN = UNDP 1
- SAYABOULE, XKH, EKONG = UNDP 2
- LOUANGPHABANG, KHAMN = Sida

The IRAP Planning Cycle

1. Data Collection → 2. Data Encoding → 3a. Preparation District Accessibility Profile
3b. Computation Access Indicators → 3c. Accessibility Mapping
4. Identification/Prioritization Access Problems
5. Defining Objectives/Targets Strategies
6. Plan and/or Project formulation
7. Presentation to Decision Makers
8. Project Implementation
9. Monitoring Evaluation
The development objective of the project is to improve rural communities' access to basic, social and economic goods and services to improve living conditions.

The immediate objective of the project is to develop the capacity in Lao PDR to plan for improved access in rural areas.

IRAP's Strategy 1: Improve Mobility of Rural people

- improve rural road network
- improve track, trails, footpaths, footbridge
- improve transport services
- introduce low-cost means of transport

(People can travel faster, more convenient, more often, safer and less expensive)
IRAP’s Strategy 2: Improve Distribution of Facilities/Services

- Water supplies
- Schools
- Health centers
- Markets

(People have to travel less and reduce demand of transport)

Diagram 1. Overview IRAP training programme.

1. T-1 TRAINING
   - Data collection
     - Accessibility Data bases
     - District Accessibility profile
   - Road analysis
     - Road maps, District Road network
   - Mapping
     - Accessibility district and sub-district (Zone) maps
2. T-2 Training
Data analysis
Prioritization
District/Zone/villages priority of access problems

3. T-3 Training
Problems analysis
Project development
Translation priorities to projects
Project proposals

4. T-4 Training
Problem analysis
Setting sectoral targets till 2003
Formulation district action plan
District action plan

Parties Concerned Participate in IRAP procedures:

T1 - Data collection
- Villager - Data provides
- District Authority - Enumerators
- Mapping
- Provincial IRAP - Trainers, Supervisors

T2 - Prioritization
- Provincial, District concerned sectors
- Provincial IRAP trainers with head quarter assistance

T3 - Project proposal
- Village heads, Zone heads
- District concerned sectors and governors
- Provincial staff from concerned sectors
- International concerned projects and NGO in concerned province

Micro project implementation:
- Villagers (beneficiary), Zone leaders, District concerned sectors and authority, provincial concerned department and IRAP.
- Three School buildings in Mokwen Zone

Project provided external construction materials (cement, nail, steel bar etc) and supervisors, villagers provided local materials and labours (paid in cash) for construction and also villagers fund and volunteer for maintenance.

- Nine (drift) or water crossing Konoi Road MeuangXai

Project provided external construction material (cement, nail, steel bar, pipe etc) and supervisors, villagers provided labour with paid (in cash).

Link Planning - LB/EB Implementation

Participatory Planning (Appreciation, Influence and control) Drawing present situation of villages and villages in the future by Female, males, youth and elder group.

Outputs: List of activities will be implemented by villages
- List of activities will be implemented by outsiders
- List of activities will be implemented by both (villagers and outsiders).

Small scale project construction Oudomxai province:

- Water supply (gravity feed, shallow wells) 6 projects

Project provided external construction materials and supervisors, villagers provided local materials and labours for construction and also villagers fund and volunteer for maintenance.
Laos: Linking IRAP to the National Rural Development Programme
RURAL DEVELOPMENT POLICY PROJECT AND IRAP
(UNDPALO, SPPD)

THE RURAL DEVELOPMENT POLICY PROJECT:

This paper explains the features and describe the cooperation between the Rural Development Policy Project and IRAP and tries to make the correlation between these two undertakings.

The rural development project aims is to do research on the followings issue, like
- Technical support to the LFNC and CLCRD in implementing the ILO/Danida Ethnic Minority Village Development Programme,
- Procedures to build capacity in CLCRD to establish a database on the country’s Focal Sites, and to develop indicators to compare each other and with non-Focal Sites,
- The different approaches for functions of the different Focal Sites growth-poles (economic), poverty alleviation (social or security) efforts and how to make the Focal Site concept more transparent for international organizations,
- Organize and conduct of three regional seminars to share the findings and recommendations of the entire SPPD process with their provincial and district counterparts and receive comments and facilitate the implementation of the recommendations.

The Government’s one major goal is to eradicate poverty in the country. With funds from NORAD the UNDP initiated a review and analysis of some of the country's programmes and formulate actions for policy implementation. ILO recommended focusing on providing policy advice on rural development (focal sites) to the government of Lao PDR. It was proposed that an analysis of identified Focal Site issues be done and recommend advisory actions for government. The following is the course of action taken:
- Description and Classification of Focal Sites,
- Definition of Planning/Implementation Indicators and Monitoring/Evaluation Proposals,
- and Define the Resettlement Process.

PRESENT RURAL DEVELOPMENT PROGRAMME AND EFFORTS IN LAO PDR:

In the 4th National Socio-Economic Development Plan (1996-2000), the following objectives are presented:
- alleviate poverty among rural populations in remote areas,
- provide food security,
- promote commercialization of agriculture production,
- eliminate shifting cultivation, and
- improve access to development services.

These objectives are to be implemented and achieved through the following eight national priority programmes:

1. Food security,
2. Commercial agriculture production,
3. Shifting cultivation stabilization,
4. Rural development,
5. Infrastructure development,
6. External economic relations,
7. Human resources development, and
8. Access to services.

Among these eight priority programmes, rural development is given a high priority. For this, policy formulation, monitoring its implementation, reporting and coordination are the recommended actions. For this Central Leading Committee for Rural Development (CLCRD) was established and be responsible to oversee rural development efforts. The Committee’s duties are to:

- develop policies for rural development in general with emphasis on Focal Site approach
- collect statistical data at the grassroots level,
- act as a center for coordination,
- study, analyze and summarize priority activities, and
- monitor and advise on implementation.

The Rural Development Programme for 1998-2002 is focused on promoting focal sites in the most deprived areas through a multi-sectoral and integrated approach meant to guide all rural development endeavors. This is to be achieved through a concerted, coordinated and complementary approach essentially aimed at the identified sites this provides:

1. An efficient, participatory organizational structure at the district, provincial and national levels for rural development, covering the whole country, and
2. Carefully chosen, integrated rural development clusters that we call Focal Sites.

This concept is used in Laos as a way of “integrating” a large number of rural development initiatives, such as:

- access to a larger market for the sale of produce or products,
- maximum interaction and strong multiplier effect between key and sometimes, linked activities forming the nucleus of the development pole,
- development of a greater skilled and skilled labour mobility brought about by the existence of a more concentrated labour market,
- the presence of micro-credit and banking facilities to provide cheaper capital,
- institutional economies - potentially with lower interest rates, taxes and insurance,
- transport economies - due to the competition amongst transport providers and savings in the cost of assembling loads to send to market,
- communication economies and social benefits, and
- economies of scale in providing social facilities (health and education) and other public services and infrastructure (eg. rural road, irrigation, markets, agricultural extension, rural electrification and telecommunication).

**METHODOLOGY AND APPROACH:**

One questionnaire (see attached questionnaire) was designed and proposed that the project will collect information from four levels, e.g. Central, Provincial, District and Focal Sites. It was also proposed that in provincial and district level line departments, all NOO and all international donor/agency developments projects be initiated.
After finishing data collection in the four provinces, these were encoded using MS-Access computer programme. Focal Site maps were produced using Map-Info. The MS-Access and Map-Info programme were installed in the project computer for use by CLCRD officials in future.

**THE IRAP**

The Integrated Rural accessibility Planning (RW) Project is a multi-sectoral initiatives working in Central, Provincial. District and Village levels, through the use of a simple data gathering and analysis procedure to determine of local development needs. The approach is designed to guide the identification and prioritization of local needs. The approach makes use of innovative and easily understood procedures for data collection, mapping, analysis, prioritization, and monitoring and impact evaluation.

The project has produced district Accessibility Data Base (ADB), District Profile (DP) and comprehensive Road Network Maps of all the villages and districts in the eight provinces covered-Project building the capacity of local level planners in local level planning for basic services.

IRAP in short, is a local level, needs-based, area-development, planning tool. Its main features are its simplicity, user-friendliness, low-cost application and immediate outputs and the rural development policy project adopt the use of tools.

**THE COOPERATION BETWEEN MAP & POLICY PROJECT:**

The study makes use of the secondary information such as the IRAP accessibility database and maps, with primary data generated through field research and observations.

Ultimately in the process of the Monitoring of Focal Sites Development (Main Report & Data Bank) in the future, the IRAP Planning cycle will be used to gather focal site (villages within focal site), in analysis, priority setting, and finally translating the priority into the project.

Source: Rural Development Policy Project and IRAP Project Papers.

**Author:** Islam M Mafizul

Rural Development Policy Project (LAO/98/551)
Central Leading Committee For Rural Development Office (CLCRDO)
Prime Minister’s Office, Ph: 00-856-021-223727, Fax: 00-856-021-223729

E-mail: mafizulislam@hotmail.com
ILO Labour Based projects

ILO Programmes in Cambodia with MRD
- CMB/92/008
Rehabilitation
(emergency)
Philippines – Example of a data collection manua
ANNEX

Philippines: Summary of Municipality Access Findings
**Summary of Municipality Access Findings 1998**

Region : Region 13  
Province : SURIGAO DEL SUR  
Municipality : BISLIG

<table>
<thead>
<tr>
<th>ACCESS TARGETS</th>
<th>EXISTING ACCESS CONDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WATER SUPPLY</strong></td>
<td></td>
</tr>
<tr>
<td>No. of Sitios Surveyed :</td>
<td>172</td>
</tr>
<tr>
<td>No. of HHs with direct supply :</td>
<td>13,738 (65.07%)</td>
</tr>
<tr>
<td>No. of HHs w/out direct supply :</td>
<td>7,375 (34.93%)</td>
</tr>
<tr>
<td>Average collection time :</td>
<td></td>
</tr>
<tr>
<td>Dry Season :</td>
<td>39.22</td>
</tr>
<tr>
<td>Wet Season :</td>
<td>22.20</td>
</tr>
<tr>
<td><strong>ENERGY</strong></td>
<td></td>
</tr>
<tr>
<td>No. of Sitios Surveyed :</td>
<td>688</td>
</tr>
<tr>
<td>No. of HHs Using Firewood :</td>
<td>64,972 (76.93%)</td>
</tr>
<tr>
<td>No. of HHs Collecting Firewood :</td>
<td>49,608 (59%)</td>
</tr>
<tr>
<td>Average collection time :</td>
<td>64.85</td>
</tr>
<tr>
<td>No. of Sitios with Power Supply :</td>
<td>130 (18.90%)</td>
</tr>
<tr>
<td><strong>SCHOOLS</strong></td>
<td></td>
</tr>
<tr>
<td>No. of Brgys Surveyed :</td>
<td>24</td>
</tr>
<tr>
<td>No. of Brgys w/ Elem. School :</td>
<td></td>
</tr>
<tr>
<td>No. of HHs :</td>
<td>24 (100.0%)</td>
</tr>
<tr>
<td>No. of Brgys w/out Elem. School :</td>
<td></td>
</tr>
<tr>
<td>No. of HHs :</td>
<td></td>
</tr>
<tr>
<td>Pupil/Classroom ratio :</td>
<td>1:50.10</td>
</tr>
<tr>
<td>Pupil/Teacher ratio :</td>
<td>1:42.72</td>
</tr>
<tr>
<td><strong>HEALTH SERVICES</strong></td>
<td></td>
</tr>
<tr>
<td>No. of Brgys Surveyed :</td>
<td>24</td>
</tr>
<tr>
<td>No. of Brgys with BHS :</td>
<td>23 (95.83%)</td>
</tr>
<tr>
<td>No. of Brgys w/o BHS :</td>
<td>1 (4.17%)</td>
</tr>
<tr>
<td>No. of Brgys regularly visited by :</td>
<td></td>
</tr>
<tr>
<td>Midwife</td>
<td>24</td>
</tr>
<tr>
<td>Nurse</td>
<td>2</td>
</tr>
<tr>
<td>Physician</td>
<td>2</td>
</tr>
<tr>
<td>Brgy. Health Wor.</td>
<td>21</td>
</tr>
<tr>
<td>Dentist</td>
<td>2</td>
</tr>
<tr>
<td>Brgy. Nut. Schr.</td>
<td>8</td>
</tr>
<tr>
<td>Pupil/Classroom ratio :</td>
<td>1:50.10</td>
</tr>
<tr>
<td>Pupil/Teacher ratio :</td>
<td>1:42.72</td>
</tr>
<tr>
<td><strong>ROADS</strong></td>
<td></td>
</tr>
<tr>
<td>No. of Brgys Surveyed :</td>
<td>24</td>
</tr>
<tr>
<td>No. of Brgys w/ all yr round road access :</td>
<td></td>
</tr>
<tr>
<td>No. of HHs :</td>
<td>19,321 (86.25%)</td>
</tr>
<tr>
<td>No. of Sitios Surveyed :</td>
<td>172</td>
</tr>
<tr>
<td>No. of Sitios w/ all yr round road access :</td>
<td></td>
</tr>
<tr>
<td>No. of HHs :</td>
<td>1,833 (27.11%)</td>
</tr>
<tr>
<td><strong>TRANSPORT SERVICES</strong></td>
<td></td>
</tr>
<tr>
<td>No. of Sitios Surveyed :</td>
<td>172</td>
</tr>
<tr>
<td>No. of Brgys Surveyed :</td>
<td>19</td>
</tr>
<tr>
<td>No. of Brgys with Rice/Corn mills :</td>
<td></td>
</tr>
<tr>
<td>No. of HHs :</td>
<td>14,026 (70.32%)</td>
</tr>
<tr>
<td>No. of Brgys with Drying Facility :</td>
<td></td>
</tr>
<tr>
<td>No. of HHs :</td>
<td>1,666 (8.35%)</td>
</tr>
<tr>
<td>No. of Brgys with Warehouse :</td>
<td>773 (3.88%)</td>
</tr>
<tr>
<td>No. of HHs :</td>
<td>21,113 (100.0%)</td>
</tr>
<tr>
<td>Average Collection Time :</td>
<td>44.45</td>
</tr>
</tbody>
</table>

**MARKETS**

| No. of Brgys Surveyed : | 24                        |
| No. of Brgys. Engaged in marketing : |                     |
| No. of HHs :           | 21,113 (100.0%)           |
Philippines: Computation of Accessibility Indicators
Computing the Accessibility Indicator (AI)

The Accessibility Indicator (AI) is taken as a function of the number of households affected and the distance of the travel time said households spend to get to the service facilities. The AI is a numeric value that represents the ease or difficulty in utilizing a specific service of facility.

WATER SUPPLY

<table>
<thead>
<tr>
<th>Settlement Hierarchy</th>
<th>Accessibility Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sitio</td>
<td>Number of households not served by an improved water supply close to the house (multiplied by) the Average water collection time during dry season</td>
</tr>
<tr>
<td>Barangay</td>
<td>Weighted average of sitio indicators</td>
</tr>
</tbody>
</table>
| Municipality         | (1) Number of households not served by an improved water supply close to the house  
                        (2) Average water collection time in the dry and in the wet season |
| Province             | (1) Number of households not served by an improved water supply close to the house  
                        (2) Average water collection time in the dry and in the wet season |

M12-3

ENERGY

<table>
<thead>
<tr>
<th>Settlement Hierarchy</th>
<th>Accessibility Indicator</th>
</tr>
</thead>
</table>
| Barangay             | For barangays located more than 30 minutes walking distance from a source of fuelwood:  
                        Number of households collecting fuelwood for free * average distance to source |
| Municipality         | (1) % of sitios without electrical power supply  
                        (2) Number of barangays (households) more than 30 minutes away from a source of fuelwood |
| Province             | (1) % of sitios without electrical power supply  
                        (2) Number of barangays (households) more than 30 minutes away from a source of fuelwood |

M12-4
## EDUCATION

<table>
<thead>
<tr>
<th>Settlement Hierarchy</th>
<th>Accessibility Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barangay</td>
<td>For barangays without a complete elementary school: Number of elementary school age children traveling to nearby barangays * distance</td>
</tr>
<tr>
<td>Municipality</td>
<td>(1) Number of barangays (households) without a complete elementary school</td>
</tr>
<tr>
<td></td>
<td>(2) Pupil/Classroom ratio</td>
</tr>
<tr>
<td></td>
<td>(3) Pupil/Teacher ratio</td>
</tr>
<tr>
<td>Province</td>
<td>(1) Number of barangays (households) without a complete elementary school</td>
</tr>
<tr>
<td></td>
<td>(2) Pupil/Classroom ratio</td>
</tr>
<tr>
<td></td>
<td>(3) Pupil/Teacher ratio</td>
</tr>
</tbody>
</table>

## TRANSPORT SERVICES

<table>
<thead>
<tr>
<th>Settlement Hierarchy</th>
<th>Accessibility Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipality</td>
<td>Number of sitios without regular transport services</td>
</tr>
<tr>
<td>Province</td>
<td>Number of sitios without regular transport services</td>
</tr>
</tbody>
</table>

## ROADS

<table>
<thead>
<tr>
<th>Settlement Hierarchy</th>
<th>Accessibility Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipality</td>
<td>(1) Number of sitios without any road access</td>
</tr>
<tr>
<td></td>
<td>(2) Number of barangays (households) without all year round road access</td>
</tr>
<tr>
<td>Province</td>
<td>(1) Number of sitios without any road access</td>
</tr>
<tr>
<td></td>
<td>(2) Number of barangays (households) without all year round road access</td>
</tr>
<tr>
<td>Settlement Hierarchy</td>
<td>Accessibility Indicator</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Barangay</td>
<td>For barangays without a health clinic plus without regular health services: Number of households * distance to main health centre</td>
</tr>
</tbody>
</table>
| Municipality         | (1) Number of barangays (households) without a health clinic  
                        (2) Number of barangays (households) without regular visits of a midwife  
                        (3) Number of barangays (households) without regular visits of a physician  
                        (3) Number of barangays (households) without a medicine supplier |
| Province             | (4) Number of barangays (households) without a health clinic  
                        (5) Number of barangays (households) without regular visits of a midwife  
                        (6) Number of barangays (households) without regular visits of a physician  
                        (7) Number of barangays (households) without a medicine supplier |

M12-7
IRAP indicators: It’s application in Cambodia

Indicators

Which indicators do we build and how do we calculate them?
Acess to:

- Water
- Schools
- Health care
- Markets
- Transport infrastructure
- Employment

Access to water

- Type of drinking water: modern or traditional;
- The type of water sources: well, pond, rain or river;
- The one way travel time to the water source to fetch water;
- The number of households per improved well in a village;
- The months of water shortage;
- Village size.
Access to schools

- Village size;
- Existence of a primary school in the village, and if so the number of students per classroom;
- Primary school pupil/population ratio;
- One way travel time to the nearest primary school;
- One way travel cost to the nearest primary school;
- Existence of a secondary school in the village;
- Secondary school pupil/population ratio;
- One way travel time to the nearest secondary school;
- One way travel cost to the nearest secondary school;

Access to Health Care

- Village size;
- Existence of health workers, trained birth attendants, presence of midwives and Kru Khmer in the village;
- Travel time to the nearest health centre;
- Travel cost to the nearest health centre;
- Travel time to the nearest hospital;
- Travel cost to the nearest hospital;
- Travel time to nearest Pharmacy;
- Travel cost to nearest Pharmacy;
- Distance to nearest hospital;
Market indicator

- Village size;
- Travel time to the nearest market to sell in wet season;
- Travel cost to the nearest market to sell in wet season;
- Travel time to the nearest market to buy in wet season;
- Travel cost to the nearest market to buy in wet season.

Transport Infrastructure indicator:

- Village size;
- Type of access: connected to an all-weather road, dry season road, ox-cart track or footpath;
- Transport Capacity in PBU (Passenger Bicycle Unit);
- Travel time to the nearest all weather road;
- Travel Cost to the nearest all weather road;
- Travel time to the District centre;
- Travel cost to the District centre;
- Transport Services available;
- Employment opportunity.
Calculation: an example

- access to water

Village size

- village population size and divide it into 4 classes:
  - 1 = < 500 persons
  - 2 = 500 – 700
  - 3 = 701 - 900
  - 4 = > 900
DW 2 Type of drinking water

- The distinction is between modern or traditional type of drinking water,
  - 1 = modern type only
  - 2 = modern and traditional
  - 3 = traditional type
  - 4 = no type at all

DW 3 Type of traditional water source

- Four classes are made:
  - 1 = well
  - 2 = pond
  - 3 = rain
  - 4 = river
DW 4 Water shortage

- how many months the village has water shortage:
  - 1 = 0 to 3 months of water shortage
  - 2 = 3 but to 6 months of water shortage
  - 3 = 6 to 9 months of water shortage
  - 4 = 9 to 12 months of water shortage

Weighing:

- 4 variables = weights range from 1 to 4;
- Workshops participants decide upon weights
- final value for each variable:
  - Village size value \times \text{weight} = \text{VS final value}
  - Drinking water value \times \text{weight} = \text{DW final value}
  - Traditional source value \times \text{weight} = \text{TS final value}
  - Water shortage value \times \text{weight} = \text{WS final value}
Drinking water indicator:

\[ x = (VS_\text{f}_v + DW_\text{f}_v + TS_\text{f}_v + WS_\text{f}_v) \frac{1}{10} \]

- Every village has a value between 0 and 4

Clustering the villages:

- Priority 1= all villages with a value \( \geq 2.10 \) (RED)
- Priority 2= all villages with a value \( \geq 1.80 \) (ORANGE)
- Priority 3= all villages with a value \( \geq 1.0 \) (YELLOW)
- Priority 4= all villages with a value \( \leq 1.0 \) (GREEN)
Overall Accessibility Indicator:

- Perception value = \( \frac{DW \text{ problem} + DW \text{ priority}}{2} \)

the same for the other sectors:
- Education
- Health care
- Transport infrastructure

Overall accessibility priority = combination sector priority score/sector perception priority:

- \( \frac{DW \text{ sector} + DW \text{ perception priority}}{2} \) = DW priority score
- \( \frac{ED \text{ sector priority} + ED \text{ perception priority}}{2} \) = ED priority score
- \( \frac{HC \text{ sector priority} + HC \text{ perception priority}}{2} \) = HC priority score
- \( \frac{TJ \text{ sector priority} + TJ \text{ perception priority}}{2} \) = TJ priority score
Integrated accessibility score = 

\[
\frac{DW \text{ priority score} + ER \text{ priority score} + WC \text{ priority score} + TI \text{ priority score}}{4}
\]

The lower the number the lower the accessibility situation of that village is, so we can make a final classification by use the ranges:

- **Priority 1**: all villages with a value \(< 2.00\)
- **Priority 2**: all villages with a value \(> 2.00\)
- **Priority 3**: all villages with a value \(> 2.50\)
- **Priority 4**: all villages with a value \(> 3.00\)
Mapping — why?

- Graphical representation of IRAP data

GPS — why?

- Topographic maps are very old - 1967
- To validate the road network, location services,
- To update location of villages and Commune center location, shifted during the civil war
GIS---why

- To convert GPS data and to update maps
- The ability to relate data to location
- It facilitates the analysis of accessibility information: location, routes and regions
- It facilitates the decision making on appropriate investment
- It uses the database and combines statistical analysis with geographical presentation
- Nice presentation of outputs

GPS/GIS is not a new concept in planning

- LGED use in **Bangladesh** via GIS unit as planning tool
- IT use as a planning tool
A mapinfo data interchange format allows to import/export format for graphical objects. Associated with a MIF file.

To create .mif file the following information are to be provided to read the file.

- MIF file Header
- MIF data Section
- MID file
- Pen, brush, symbol and font codes in MIF

The mapinfo data is in two files:

- The graphic reside in a .MIF file
- Textual data is contained .MID file.

The .MIF files has two areas:

- The file header area
- The data section

Information on how to create Mapinfo tables is in the header. The graphical object definitions are in the data section.

MIF file Header:

This is a description of file header with important information in brackets:

- **VERSION** \( n \)
- **Delimiter** \( “,” \)
- **CoordSys** NONEARTH OR EARTH PROJECTION
- **BOUNDS** \( (\text{minX1, minY1}) (\text{maxX2, maxY2}) \)
- **COLUMNS** \( n \)
  - \( (\text{name}) _ (\text{type}) \)
- **Data**
- **Pline** \( n \)
The following are explanation for the MIF file header:

**Version:**

The version clause states whether you are using VERSION 300 (Version 3.0) or 410 (Version 4.1) allow multi-section polyline objects.

**Delimiter:**

Specify the delimiting character in quotation marks, for example:

```
MELIMITER " , ",
```

The default delimiter is Tab; if you are using the default, you do not need the DELIMITER line.

**CoordSys clause:**

Specify the COORDSYS clause to note that the data is not stored in longitude/latitude form. When no COORDSYS clause is not specified, data is assumed to be stored in longitude/latitude forms.

Two Syntax type of coordsys are using in mapinfo:

Syntax 1:

```
CoordSys Earth projection type, datum, unit name, origin longitude, origin latitude, Scale factor, false northing, false easting.
```

For Cambodia, use the following format in Syntax 1:

```
CoordSys Earth Projection 8, 104, "m", 105, 0, 0.9996, 500000, 0
```

8 = Earth projection type; **Transverse Mereator**, also known as Gauss-Kruger

104 = Datum, World Geodetie System 1984, **WGS 84**

"m" = Unit in **meter**

105 = Origin **Longitude**; for Cambodia

0 = Origin **Latitude**; for Cambodia

0.9996 = **Scale factor**; for Cambodia

500000 = **False northing**; for Cambodia

0 = **False easting**; for Cambodia

Syntax 2:
CoordSys Nonearth
Units “m”

Bounds:
This is the drawing limits for the map and limiting coordinates:

BOUNDS (minX1, minY1) (maxX2, maxY2)

Columns:
Specify the number of columns. Then, for each column, create a row containing the column name, the column type, and for character and decimal columns, a number to indicate the width of the field. Valid column types are:

- Char (width)
- Integer (which is 4 bytes)
- Decimal (width, decimals)
- Float
- Date
- Logical

Example of Column header is:

Columns 3
STATE_char (15)
POPULATION_integer
AREA_decimal (8,4)

For the database specified in this header, the MID file has there columns;

A 15 character field that represents the STATE column

An integer field that represents the POPULATION column

An AREA column that consists of decimal field with upto 8 total and 4 characters after the decimal.

MIF Data Section:
The data section of the MIF file follows the header and must be introduced with DATA on a single line:

DATA

The data section of the MIF file can have any number of graphical primitives, one for each graphic object. Mapinfo matches up entries in the MIF and MID files, associating the first object in the MIF file and with the first row in the MID file, the second object in the MIF file with the second row in the MID file, and so on.
When there is no graphic object corresponding to a particular row in the MID file, a “blank” object (NONE) must be written as a place holder in the corresponding place in the MIF file.

NONE

The graphical objects that can be specified are:

- Point
- Line
- Polyline
- Region
- Arc
- Text
- Rectangle
- Rounded rectangle
- Ellipse

A point takes two parameters, an X coordinate and a Y coordinate

POINT X Y

A polyline object consists of one or more sections. If the polyline has more than one section, include the MULTIPLE keyword, followed by the number of sections.

PLINE (3 space) MULTIPLE numsections

For example:

PLINE 3
362649 1486026
362863 1486233
362751 1487428

MID File:

The MID file contains data, one record of data per row, delimited by the character specified in the delimiter statement.

If the delimiter is included as part of the data in a field, enclosed the field in quotation marks. The MID file is an optional file, when there is no MID file, all fields are blank.

EXAMPLE FOR MIF FILES:

Syntax 1:

Version 410
Delimiter “”, ”
CoordSys Earth Projection 8, 104, “m”, 105, 0, 0.9996, 500000, 0
Bounds (211823, 1144256) (408612, 1625281)
Columns 7
 FNODE _ float
TNODE _ float
LPOLY_ float
RPOLY _ integer
LENGTH _ float
ROADS _ integer
ROADS ID _ integer

Data

Pline 4
376924 1475865
377632 1475713
377687 1475687
377792 1475668

Syntax 2:

Version 300
Delimiter “, ”
CoordSys NONEARTH
Units “m”
Bounds (211823, 1144256) (408612, 1625281)
Columns 7
  FNODE _ float
  TNODE _ float
  LPOLY_ float
  RPOLY _ integer
  LENGTH _ float
  ROADS _ integer
  ROADS ID _ integer

Data

Pline 4
376924 1475865
377632 1475713
377687 1475687
377792 1475668
Benefits

Time

Construction Post Construction

Normal benefits

Additional benefits using LBM

Multiplier effects using LBM

Additional benefits of using LBM technology during construction (multiplier and long-term indirect effects) and maintenance (income and indirect effects)

Project impact on poverty irrespective of technology choice
Benefits

Construction Post Construction

Multiplier effects using LBM

Additional benefits of using LBM technology during construction (multiplier and long-term indirect effects) and maintenance (income and indirect effects)

Normal benefits

Additional benefits using LBM

Financial

Economic

Social
Benefits

Construction Post Construction

Normal benefits

Additional benefits using LBM

Multiplier effects using LBM

Additional benefits of using LBM technology during construction (multiplier and long-term indirect effects) and maintenance (income and indirect effects)

Quantifiable

Non-Quantifiable

Economic

Social

Financial