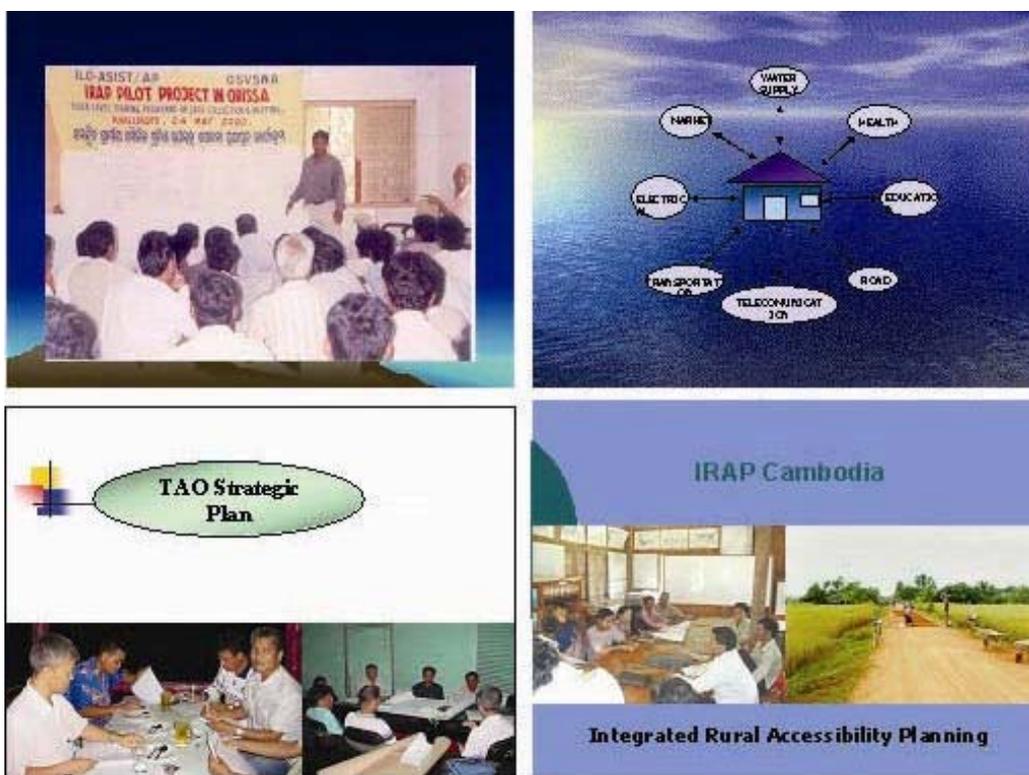


ASIST Asia Pacific

...Mainstreaming Poverty Reduction Strategies...

Integrated Rural Accessibility Planning (IRAP)

Third Expert Group Meeting



INTERNATIONAL LABOUR ORGANIZATION

Regional Office for Asia and the Pacific

Hosted and organized by ASIST Asia-Pacific

March 27-28, 2003, Bangkok

Integrated Rural Accessibility Planning (IRAP)

Third Technical Meeting

Bangkok March 27-28, 2003

Introduction

All people, men and women, poor and rich, rural and urban, farmers and fishermen, need to have physical access to locations and facilities where they can avail over the goods, information and services they require. Access is hereby defined as the ability - the level of difficulty - of people to reach facilities and locations to use or obtain goods, information or services. The access needs of people can be broadly grouped in three broad categories. First, those associated with basic needs such as water supply, energy and food security. Second, those associated with the social welfare aspects of life such as health and education. Third, those associated with the economic welfare aspects of rural life including agriculture, livestock, trading and cottage industries.

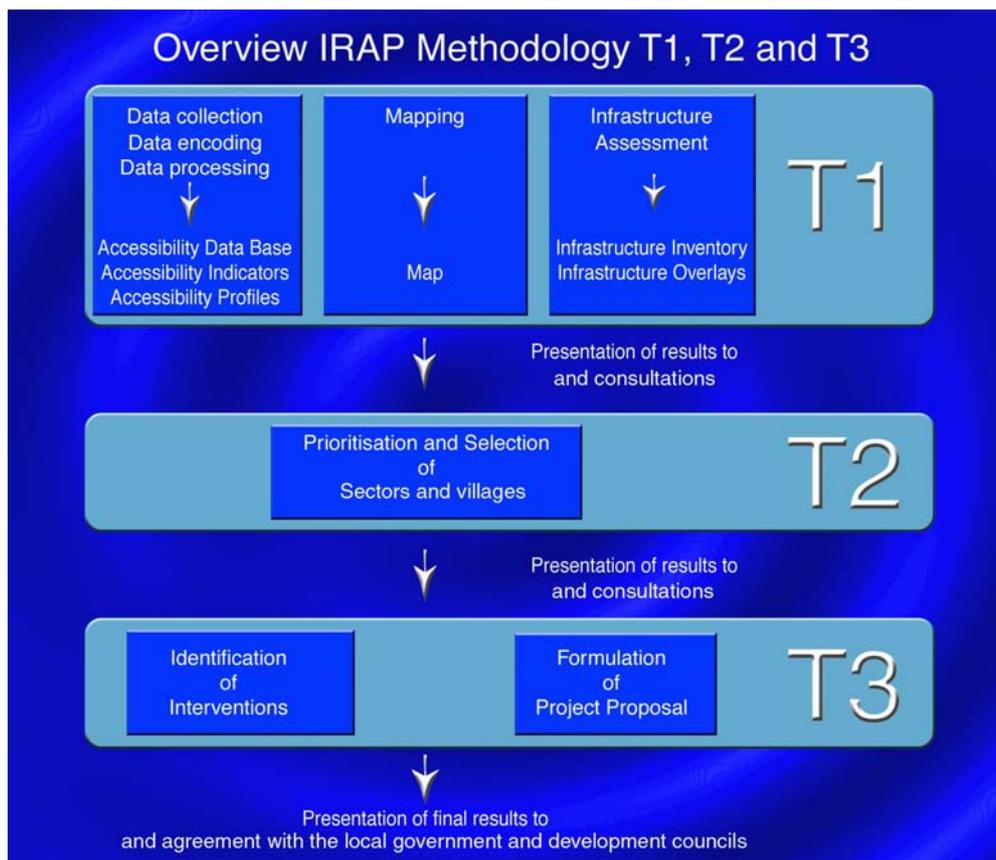
A lack of access limits the opportunity that people have to improve and sustain their social and economic well being. Improving access and reducing poverty are correlated, as a lack of access is perceived as one of the main underlying factors of poverty, particularly in rural areas in developing countries.

Accessibility is determined by the location where people live, the location where facilities and services are located and the transport system that brings these two locations together. Access can be improved through the provision of infrastructure which results in either a better distribution of facilities and services (water supplies, schools, markets, health centers) or an improved mobility of people and service providers (roads, tracks, trails, waterways, footbridges). Improving access is the goal while infrastructure development is an intervention to reach this goal.

One of the recent trends in many countries in the Asia Pacific region is the transfer of development responsibilities to local government units. A decentralization process is well underway in for example the Philippines and India and more recently initiated in countries such as Thailand (1999), Indonesia (2000) and Nepal (1999). One of the first responsibilities to be decentralized is often the task of small-scale infrastructure development. The transfer of responsibilities and resources requires efforts to strengthen local capacity for planning, implementation and monitoring to bring about a rational allocation of scarce resources according to the real priorities.

The ILO has been involved in developing a planning process for improving access in rural areas designed for application at the local government level. This approach is called "Integrated Rural Accessibility Planning" or "IRAP". IRAP simultaneously seeks to improve the rural transport system and distribution of facilities and services. The objective of the process is to - in a cost-effective manner - improve access to goods and services in rural areas. IRAP introduces a set of planning tools which are based on access needs of rural people and seek to maximize the use of local resources. Its main features are its simplicity, user friendliness, low-cost application and immediate outputs. Local planners can make use of the tools, as part of their routine planning activities, to define priorities for different sectors and communities. The process enables the planner to quickly assess what should be done where and identify rural infrastructure priorities. For example, a road linking village A to B or a school in village D. IRAP enhances participation and promotes an efficient bottom-up process.

The figure below summarizes the process and the planning tools¹.



¹ Different variations of the IRAP procedures are developed in different countries.

Ongoing IRAP Activities in the Asia Pacific Region

Integrated Rural Accessibility Planning (IRAP) grew out of Integrated Rural Transport Planning (IRTP). The original objective of IRTP was to identify transport patterns of rural households and identify their transport needs. In early 1990, the experts working with an IRTP 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 old acronym (IRTP = Integrated Rural Transport Planning) with a new acronym (IRAP = Integrated Rural Accessibility Planning). IRAP became a local level planning procedure for identifying interventions to improve accessibility in rural areas. Interventions could either be classified as transport interventions or interventions in terms of locating the services people need (and hence reduce their demand for transport). 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 decentralisation. A first set of guidelines was produced in 1994² to guide practitioners through the IRAP process as developed in the Philippines. These guidelines were revised in 2002³ under a Dutch funded project to apply IRAP procedures nation-wide.

IRAP procedures have been mainstreamed in **the Philippines**. A three-phased Dutch funded project assisted the country in developing the necessary capacity to apply the IRAP tools nation-wide. All Local Government Units (LGUs) have now received training and technical assistance on IRAP. This process has taken almost 10 years. IRAP however can not be prescribed as a mandatory planning tool. Under the Local Government Code of 1992, LGUs are free in selecting and developing their own planning procedures. Many LGUs have stated that IRAP procedures indeed serve their planning needs and requirements and intend to continue using the procedures. The Department of Interior and Local Government (DILG) which was supported by the IRAP technical assistance projects developed the in-house capacity to, if necessary, technically support the LGUs and is developing a national database on accessibility. The long standing ILO Technical Assistance to DILG has been phase out as of 31/12/2002. It remains to be seen to what extent the procedures will continue to be used. Although interest, demand and use at the LGU level is substantial it has proven to be much more difficult at the national level to develop and maintain the necessary capacity to assist the LGUs.

A more recent development in the Philippines has been the adoption of IRAP procedures in a major rural infrastructure development project financed by the Asian Development Bank (ADB). A loan for the Infrastructure for Rural Productivity Enhancement Sector Project was approved by the ADB in October 2000. The project will remove constraints to agricultural productivity

² Guidelines on Integrated Rural Accessibility Planning – Geoff Edmonds, Chris Donnges and Nori Palarca (Manila 1994) ILO

³ The IRAP Guidebook – Integrated Rural Accessibility Planning for Local Governments – Lorraine Villacorta and Martha Mildred Espano (Manila 2002)

by investing in rural infrastructure in regions in the southern Philippines with high poverty incidence and high agricultural potential. The project will be driven by the needs and demands of communities that lack the infrastructure essential for them to realise the productivity potential of their land. Proposals emanating from local government units (LGUs) for subprojects that meet feasibility criteria will be eligible for project financing. Using fully decentralised implementing arrangements, the project will also advance the decentralisation of rural infrastructure planning and management. It requires the LGUs to pre-identify investment opportunities with the IRAP procedures. The Department of Agriculture (DA) and ILO have signed a Letter of Agreement for ILO to provide the necessary quality control. Activities will focus on the roads, irrigation and water sectors and will be implemented over a period of three years.

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. The IRAP project established an office in the Transport Planning Unit under the Ministry of Communication, Transport, Post and Construction (MCTPC).

A Technical Assistance Team (TAT) assisted 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 decentralisation and the implementation of IRAP needed a different approach compared to, for example, the Philippines. 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. As a result of its initial success, project activities were extended to 5 more provinces in 1997 with UNDP and Swedish funding.

For all its achievements, the project team had been unsuccessful in consolidating the IRAP process and institutionalizing the IRAP procedures at the national level. UNDP continued funding the development of IRAP in the year 2000 with the objective to develop a second phase in the year 2001. The second phase never came off the ground as UNDP withdrew its funding in late 2001 due to budget constraints.

MCTPC decided in 2002 to transfer the project team and the IRAP procedures to the newly created Local Road Division (LRD) and effectively institutionalized IRAP as the tool for rural road planning. Presently, Sida and the World Bank support IRAP activities associated with the road sector in 3 provinces. The team changed the acronym from IRAP to PRTP (Participatory Rural Transport Planning). The objective is to have a national PRTP planning

tool, based on the “IRAP principles”, and used by all local governments in their rural road planning.

IRAP activities in **Cambodia** started in May 1999 as a separate activity under the ILO Labour-based “Upstream” Project. 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 established local capacity to use IRAP procedures. Local government officials were trained how to analyse the situation in their district, how to prioritise 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 development of IRAP procedures in Cambodia has proven to be very successful in a relatively short period of time. Both Government and donors appreciated the use of the IRAP tools. As a result, ILO was sole-sourced by ADB in 2002 to provide technical inputs under the Northwest Rural Development Programme (NRDP). The objective of this collaboration is to develop and implement IRAP activities in the 4 provinces covered under the NRDP and to establish capacity at National Level (Ministry of Rural Development (MRD)) to replicate the process elsewhere in the country. Other donors have shown interest in similar collaboration as well.

At present the ILO has a small TAT in Cambodia assisting the Government in further develop the process and capacity.

IRAP activities in **Indonesia** started in 1996 but were initially limited to research, demonstration testing of a possible process and implementation in a few demonstration areas. The Bandung Institute of Technology (ITB) in cooperation with ILO 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 initial work concluded that IRAP as a planning tool could be used at the local level for improving access to basic infrastructure and services but it was deemed unlikely that IRAP would be adopted as a new rural planning tool in Indonesia since an officially approved participatory rural development planning process (P3MD) already existed.

On January 1, 2001, two laws on Regional Governance and on Fiscal Balance between Central and Regional Government became effective. As a result, local governments were given an increased autonomy in deciding on local policies, programs and budgets. This major change in the institutional framework requires a considerable amount of capacity building to strengthen

local governments and equip them with the instruments and tools to perform the tasks that have been transferred to them. For this purpose ILO and Gadjah Mada University started to collaborate to demonstrate the use of IRAP in 2 selected areas. The main purpose of this work was to receive feedback from local government staff on the usefulness and relevance of the instruments and to refine and develop a country specific process.

The work has progressed well and the demonstration phase has ended. Local governments have demonstrated their interest and appreciation for the process. The project implementation team has received a number of requests for assistance in developing similar activities with other local governments.

The implementation of IRAP procedures will be scaled up under a World Bank project that starts at the time of this writing (April 2003). The objective is to finalise the IRAP procedures and demonstrate the use and build the capacity in one province. At the same time, work will be done at national level to integrate IRAP procedures in national strategy and programme development. The Government of Indonesia established a Co-ordinating Team for Rural Infrastructure Development that works at the national policy level. IRAP activities will be implemented in close collaboration with this team.

Nepal enacted the Local Self-Governance Act in 1999. This act provides a legislative basis for the decentralization process to go further in practice. To support the decentralization process in general and capacity building of the districts in particular with respect to the rural infrastructure development and improving rural accessibility, the ILO ASIST and the Department of Local Infrastructure and Agriculture Roads (DoLIDAR) are developing IRAP guidelines for Nepal. The guidelines are being prepared on the basis of experiences of piloting IRAP in 4 districts during 2002. The IRAP tool will be further modified to suit the Nepalese situation and to be replicated on a large scale.

Guidelines and a how-to-do manual will be finalized in 2003. IRAP procedures have been integrated in the DFID funded Rural Access Program (RAP) and collaboration between the ILO team and the RAP consultants is ongoing. Different other donors have shown interest and IRAP tools may be integrated in the multi-donor funded Local Government Support Programme (LGSP).

The IRAP procedures should augment the District Transport Master Planning (DTMP) process. DTMP was developed with ILO technical assistance and has been mainstreamed in Nepal. All districts will follow DTMP guidelines before preparing district road plans.

The 73rd Constitutional Amendment Act was a historic event in the evolution of democracy in **India**. It enabled the State Governments to transfer responsibilities and functions to the local governments. Local governments in India exist at district, sub-district and village level. Village level local government (Gram Panchayat or GP) in fact covers a number of settlements (sub-villages).

The GP is the lowest-level democratic unit mandated to plan and implement programs at the grassroots level. The planning capacity at this level is very weak and planning capabilities need to be strengthened.

To assist GPs in their planning functions, it was decided to develop IRAP guidelines and how-to-do manuals for use at GP level. Activities started in 2002 in collaboration with the Birla Institute of Technology and Science (BITS) in Rajasthan and the OSVSWA NGO in Orissa.

IRAP activities are being implemented in a few GPs in both Rajasthan and Orissa. The objective is to learn by doing and develop the local capacity, guidelines and manuals to replicate the activities later on. Guidelines for data collection, analysis and prioritization have been finalized at the time of this writing. More work needs to be done to complete the demonstration activities in the 2 states. It is expected that a first complete guideline will be produced by the third quarter of 2003.

In both states there has been an interest in and an appreciation for the procedures under development. Support at higher levels will be necessary to mainstream the procedures for rural infrastructure planning. This support is sought simultaneously with the implementation of the demonstration activities but will be more explicitly targeted once the guidelines and how-to-do manuals are finalized.

In Thailand, the Tambol Administrative Offices (TAO) at sub-district level are instituted with the authority to direct and oversee development activities. A large number of TAOs are lacking adequate infrastructure and a major portion of the TAO budget is commonly spent on basic infrastructure provision.

In 2001, the ILO ASIST AP worked with the Public Works Department (PWD) to develop a guideline for local access planning and appropriate technology to be included in a standard national training programme for TAO officers. Although the guidelines were addressing the issue of local planning in general terms, it is generally believed that the adoption of local level planning tools based on the IRAP concept will require a more profound approach. The local level planning tools will need to be adapted to better complement the existing planning system before they can be integrated. As a follow-up ILO decided to support a research to improve the understanding of the current planning practices in Thailand. This research was carried out in 2002 and concluded that the following IRAP instruments could enhance Thai local level planning practices: mapping, prioritization and participation.

In 2003, ILO will support a second phase in which changes made to an existing planning manual for TAO planners, based on the three IRAP instruments referred to above, will be pilot-tested in 2 TAOs. It is anticipated that the work will eventually support the Thai Government in developing procedures and building capacity at TAO level to effectively apply local level planning procedures in decentralized rural infrastructure works.

In **Vietnam**, ILO has been collaborating with the Center for Rural Planning and Development (CERPAD) of the Ministry of Construction to introduce the IRAP procedures to two districts and to identify possible entry points for integrating IRAP procedures into existing planning processes or practices. The study, completed in 2001, concluded that rural infrastructure planning as practiced in Vietnam presents opportunities for the introduction and application of the IRAP procedures.

ILO and CERPAD intend to continue the collaboration in 2003 to fine tune IRAP procedures for use in Vietnam and to assist a province or a project to apply the procedures as a pilot case.

Although not a part of the Asia Pacific region, it is interesting to note here that also **England** has recently adopted Accessibility Planning as a tool to overcome the problems experienced by people facing social exclusion in reaching work and key services. The Government has established a working group with local transport authorities to support, develop guidance and spread good practice on accessibility planning.

A report was prepared by the Social Exclusion Unit to describe the new Government strategy. To quote from Prime Minister Tony Blair's foreword⁴:

"Improving public services, creating access to new opportunities and enabling individuals and communities to realise their potential are at the heart of this Government's ambition. That means making sure everyone in society can get to work, good schools, quality healthcare, affordable healthy food and live in a safe environment"

"The cornerstone of this report – 'accessibility planning' – offers a new way to find and solve local problems, checking whether people experiencing social exclusion can reach the services they need, and identifying action to take if they can't. Action could be through improving public transport, introducing more innovative travel options, or changing the location or delivery of services people need".

⁴ Making the Connections: Final Report on Transport and Social Exclusion, Social Exclusion Unit, Office of the Deputy Prime Minister, UK, February 2003.

The Purpose of this Expert Meeting

The first technical expert meeting for IRAP practitioners, hosted by the Local Government Engineering Department (LGED) and organized by the International Forum for Rural Transport and Development (IFRTD), was held in Dhaka, Bangladesh in 1997⁵.

The second technical expert meeting, hosted and organized by ILO ASIST Asia Pacific, was held in Bangkok, Thailand in 2000⁶

The main purpose of this third technical expert meeting was to bring together a group of experts practicing IRAP to discuss and compare different applications in different countries. IRAP practitioners from 8 countries⁷ participated in the meeting. The immediate objectives of the workshop were:

1. Discuss technical differences and similarities between country applications and learn from the different experiences;
2. To learn from the experiences with mainstreaming IRAP procedures in the Philippines, Cambodia and Laos where IRAP activities have been ongoing for some time
3. To establish linkages between the different country activities to encourage the exchange of information and technical expertise.

The workshop, comprising 19 participants, was held on 27-28 march, 2003, at the UN-ESCAP Building in Bangkok, Thailand.

The workshop included 9 country⁸ presentations explaining how different IRAP activities were implemented. Selected substantive issues such as indicators, data collection, mapping, GIS, road maintenance user groups and the use of IRAP for irrigation planning were discussed. The main aim of the Workshop was “explanatory” in the hope that improved communication and an exchange of ideas between different projects and programs would have mutual benefits. This report comprises different country materials presented during the workshop.

April 2003
Chris Donnges
ILO ASIST AP
Bangkok

⁵ See Meeting Report : Integrated Rural Accessibility Planning (IRAP) – Expert Group’s Meeting – RATP 5, ILO Geneva.

⁶ See Meeting Report: Integrated Rural Accessibility Planning (IRAP)– Second Expert Group’s Meeting – ILO ASIST AP.

⁷ Philippines, Laos, Cambodia, Indonesia, Thailand, Nepal, Vietnam and India.

⁸ Two presentations were given by the Indian representatives covering Rajasthan and Orissa States.

ANNEX 1

Agenda

International Labour Organization



ASIST-AP

**Mainstreaming Poverty Alleviation Strategies through
sustainable Rural Infrastructure Development**

ILO/ASIST-AP Project

3rd Regional Integrated Rural Accessibility Planning (IRAP) Workshop

UNCC # E, Bangkok, Thailand

Agenda

March 27, 2003

Time	Presentation	Presented By
08.00 - 08.30	Registration	All Participants
08.30 - 09.00	Opening the Seminar -Welcome Address - IRAP & ASIST -AP - Introduction to the Workshop	Ms. Mukda Sunkool Mr. Geoff Edmonds Mr. Nori T. Palarca
9.00 – 09.40	Thailand -Local Level Planning through Public Participation in Thai Context	Mr. Narong Luengbootnak
09.45 – 10.25	Indonesia -The Implementation of IRAP in Indonesia: Data Collection, Mapping, and Priority Identification	Mr. Roberto Akyuwen Dr. Latief Budi Suparma Mr. Donny Soelistiyono
10.25 – 10.40	Coffee/Tea Break	
10.45 – 11.25	India (Orissa) -T 1 Activities in Orissa: Data Collection and Mapping	Mr. Prabir Kumar Pattanaik
11.30 – 12.10	Cambodia -Transport Infrastructure Inventory (TII) -Asset Inventory as specific Data Gathering Tools	Mr. Doekle Wielinga
12.10 – 1.30	Lunch Break	
01.35 - 02.15	Vietnam -Possibility of Application of IRAP in Vietnam	Mr. Le Tuyen Hong Hai
02.20 – 03.00	Nepal -Adaptation of IRAP as a Planning Tool in the existing Local-Level Planning System	Mr. Ganesh K. Ghimire Mr. Jagannath Ojha
03.00 – 03.20	Coffee/Tea Break	
09.15 - 10.30	India (Rajasthan) -Quantification of Accessibility -Application of IRAP in Rajasthan (Positive and Negative Aspects)	Mr. Ashoke K. Sarkar
04.05 – 04.15	Recapitulation/End of Day's Session	Mr. Nori T. Palarca

International Labour Organization



ASIST-AP

**Mainstreaming Poverty Alleviation Strategies through
sustainable Rural Infrastructure Development**

ILO/ASIST-AP Project

3rd Regional Integrated Rural Accessibility Planning (IRAP) Workshop

UNCC # E, Bangkok, Thailand

Agenda

March 28, 2003

Time	Presentation	By
08.30 – 09.10	Philippines -The IRAP Procedure viz-viz irrigation Prioritization Procedures by NIA (National Irrigation Administration)	Ms. Martha Mildred D. Espano
09.15 – 09.55	Open Discussions	All Participants
09.55 – 10.15	Coffee/Tea Break	
10.20 – 11.00	LAO P.D.R. -Participatory Rural Transport (PRTP): Prioritization of Rural Road and some Footpath, Track, and Footbridges - Village Maintenance Committee (VMC) and Village Maintenance Unit (VMU)	Mr. Souksakhone Soutannouong Mr. Ounheuang Siriamphone
11.05 – 11.55	Open Discussions	All Participants
12.00 – 01.30	Lunch Break	
01.35 – 01.55	Prioritization Procedures	Mr. Chris Donnges
02.00 – 3.00	Open Discussions	All Participants
03.00 – 03.20	Coffee/Tea Break	
03.25 – 04.00	Mainstreaming IRAP in Country Planning System	All Participants
04.00 – 04.30	Closing Ceremonies	Mr. Geoff Edmonds

ANNEX 2

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ANNEX 3

Thailand

Local Level Planning through Public Participation in Thai Context

Khon-Kaen University
Narong Leungbootnak
Asian Institute of Technology, Alumni
Kriangsak Chatanantavet

ABSTRACT: This paper demonstrated the results of the study in improving efficiency of sub-district planning capacity in Thai context. The objective was to strengthen the local capacity in order to achieve sustainable rural infrastructure development for poverty reduction in the Tambol Administrative Organization of Thailand (TAO). The concept of Integrated Rural Accessibility Planning (IRAP) was introduced to increase the capacity of local level planning. The paper identified major problems occurred, followed by proposed solutions for improvement in each condition. The results revealed that the mapping, prioritization, and public participation process needed to be executed in more detail during the implementation stage. Finally, the author developed the operation manual defining work procedures, roles and responsibilities, as well as public participation process for TAO's personnel to be used as a guideline to create a better living quality for the people in the society, which is the prime objective of the organization.

Keywords: ASIST-AP, IRAP, TAO, Local Level Planning, Development Plan in, Sub-district,

1. Introduction

The Tambol Administrative Organization [TAO] was instituted with the authority to direct and oversee the development activities in their jurisdiction through their local offices at sub-district levels; the TAO Offices. Based on the study conducted by Charoen-ngam C., and Leungbootnak N. (2000), problems confronting TAO administration are 1) ambiguous TAO working procedure, 2) unclear roles and responsibilities of TAO personnel, 3) unwell-defined public participation in supporting activities and administration of TAO, 4) incompetent TAO key personnel in engineering techniques, general administration, and understanding government regulations and in addition, this research found the fifth problem as 5) unclear TAO planning development direction. The capacity to efficiently plan, administer and implement projects/activities at the local level is vital to overcome the problems and sustain the development of the Tambols.

ILO/ASIST -AP developed a framework to develop capacity at Tambol level in order to apply local level planning, and better execution of infrastructure works. This research is part of this framework to "Strengthen the Local Capacity for Sustainable Rural Infrastructure Development for Poverty Alleviation in Thailand", and comprises of only the first phase of the component concerned with Local Level Planning. The goal of this research is to seek ways to support the Thai government in building capacity at sub-district level in order to effectively develop and apply local level planning that optimizes the benefits of rural communities. This method, developed by ILO/ASIST -AP called Integrated Rural Accessibility Planning [IRAP] is being introduced and customized to supplement the existing planning methods in use at local level.

2. Desk Study and Pre -survey

Looking at the concept of accessibility as used by IRAP and the overall responsibilities of the TAO offices, on first glance it could be argued that IRAP would fit easily within the existing TAO office responsibilities. But it also reveals that the IRAP methodology only partially covers the TAO office responsibilities.

Preliminary conclusions, on the basis of the desk-study, are

- Whilst IRAP can be embedded in the existing TAO office planning system, it certainly can only deal partially with the TAO office responsibilities, and can only prioritize public services on the basis of the degree of access to them.
- It remains to be seen whether the level of accessibility in itself is a realistic proxy for the priority of an intervention. This is an implicit assumption of the IRAP methodology. Whilst access to public services might need improvement. The existing level of access to public services might be considered sufficiently high by the population, shifting their preferences to other issues.

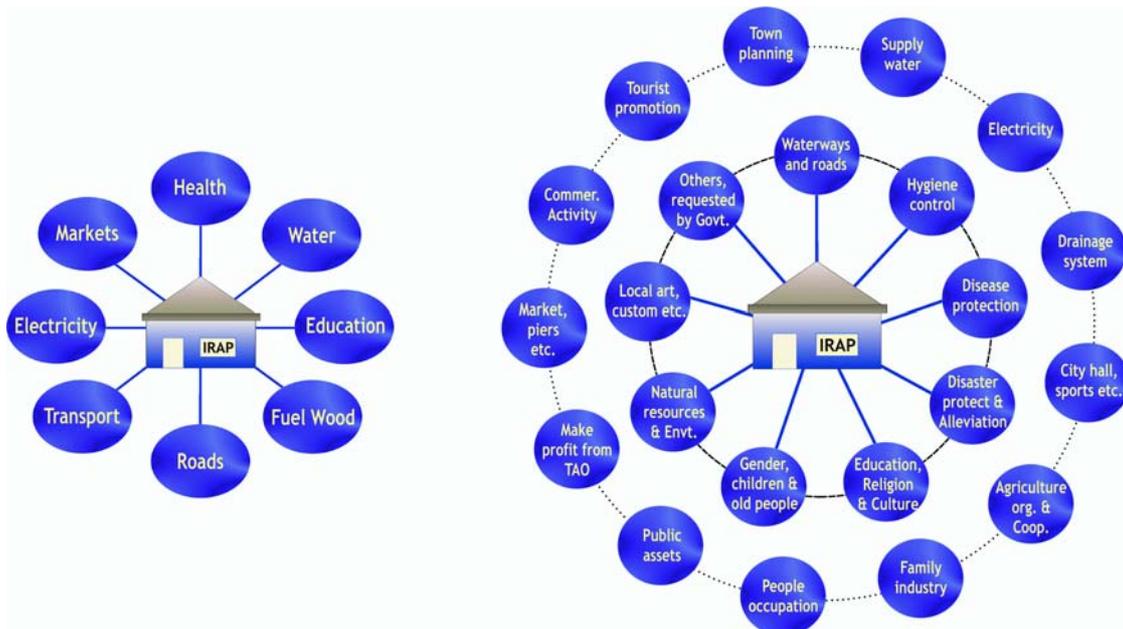


Figure 1. IRAP Concept & TAO's Duties and Responsibilities

- The IRAP methodology is oriented on an annual cycle of a recurrent budget and assumes a certain autonomy of the local government. The fact that TAO annual planning is dictated by both 5 year-plans and district approval limits the potentials of embedding of IRAP in the existing planning structure is yet to be assessed and confirmed.
- No rigid formal ranking procedure was described in the documents of the Ministry of Interior or other relevant Public Government Departments. Assuming that participation of the local population in the ranking process is deemed necessary and even expected in order to efficiently and effectively reveal their true preferences, formally a void exists in the current planning system that might allow the embodiment of IRAP.

On the basis of the observation in pre-survey stage, a few additional preliminary conclusions can be made as follows;

- Lack of appropriate formalization and awareness of regulations, procedures, tasks, responsibilities and public participation, as well as inadequate capacity at the TAO offices has resulted in less efficient, lower quality and ad-hoc delivery of public services, internal conflicts, and lack of local participation.
- The absence of a ranking procedure in the formal legislation is also observed in the TAO office's practices. The upshot of this is that the expected void of a ranking procedure in the current planning practices at local level exists; the use of IRAP for these properties would be appropriate.
- Because IRAP is based on a set of specific rigid procedures, in theory it could supplement the existing planning system to exactly improve those issues on which it were mentioned as weaknesses: participation, formalization and prioritization.

3. Research Methodology

Data collected have been analyzed to find out the problems and administrative methods in reference to government rules and regulations, construction management theories, and guidelines to the effectiveness of the administration. The results of the research have been synthesized into issues related to the administration of the development of the infrastructure projects including guidelines to problems solving. The results of the research have been designed to form a pattern of administration to enhance the efficiency of TAO planning system.

The regulations and procedures of the various groups of personnel involved in TAO are clearly specified in this report. The research methodology structure comprises of three processes i.e.

Process 1. Finding the preliminary data to set the objectives and scope of the research. This consist of:

- Literature review
- Constitution, acts, and relevant regulations
- Structure of the administration of TAO

Process 2. The preliminary survey to examine the problems affecting TAO planning development. This consist of:

- Structure and characteristics of the problems
- Character and scope of the problems
- Methods of preliminary survey: questionnaires, interviews, and visit to TAO

Process 3. Data collection, data analysis, and manual design to develop a manual for TAO planning development.

The manual divided into two parts:

1. Data collection and data analysis, made up of:
 - The design of research instrumentation
 - Pilot test of research instrumentation
 - Data collection and data analysis
 - Seeking problems, and guidelines to problem solving
2. Designing and developing manual, made up of:
 - Drafting the manual
 - Pilot test of the manual
 - Inserting guidelines of problem solving into the manual

4. Results of the Study

IRAP planning cycle has been adopted from ASIST-AP and adapted for use in this research. The planning cycle consists of 8 steps i.e. information preparation, intervention formulation (village level), intervention formulation (sub-district level), project proposal, development plan proposal (draft), public hearing, decision-making, and implementation.

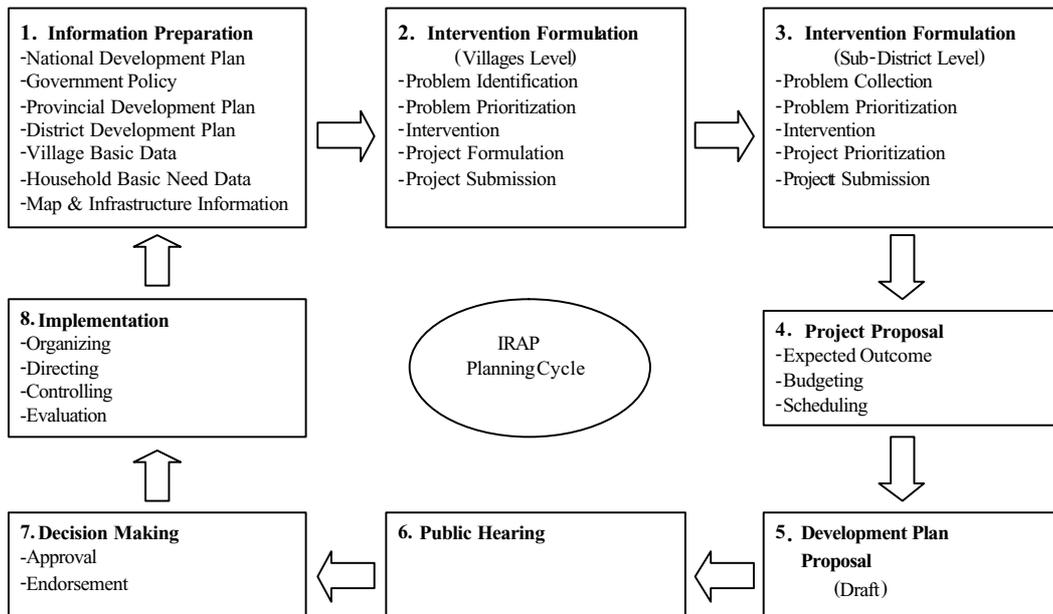


Figure 2. The TAO Planning Process in Thailand by using IRAP planning cycle concept

Following the planning cycle, 3 main issues i.e. mapping, problem prioritization and public participation have been focused on. The results are clarified as follows.

1. Mapping

Mapping is not really utilized in the TAO planning system. The benefits of mapping probably leads to more conclusions or questions which are yet to be verified. It definitely assists the planner to find instigated solutions to access problems, which otherwise will remain unseen (Dingen R., ASIST Asia Pacific, 2000). Meanwhile, TAO has failed to formally apply the mapping concept in its planning system.

Since the mapping is needed for application in the TAO development plan, it is therefore necessary to understand the concept so that it can be applied in a proper way. According to the study by Prangsri P. (2000), a mapping should consist of main sections i.e. ‘general information’, ‘roles, duties and responsibilities of TAO’, ‘Problem’ and ‘Others’. Once required information is received, they will be used as a guideline and direction for creating a map, which is later applied in the development plan. In developing a map, the basic requirements i.e. symbols, land types and public utilities should be considered.

2. Prioritization

TAO has not applied a rigid framework of prioritization since MOI has not provided the framework to TAO. In this study, prioritized procedure/method is shown in the development plans. The plans simply setup ranks problems and the proposed projects to which budget is allocated. The IRAP process on the other hand, focuses more on this issue. Even though the calculation of index in each country is different, at least, the index calculated from the rigid framework gives more reliability.

The ranking method proposed by Laewpapai B., (B.E 2541) are adjusted and adopted. The objective attempts to prioritize the problems. The evaluation equation is given by:

$$y = xwT \quad (1)$$

where:

$y \in \mathbb{R}^{1 \times 4}$: Prioritization score for each problem

$x \in \mathbb{R}^{1 \times 5}$: Weighting vector to represent important degree of each concerned issue.

$w \in \mathbb{R}^{1 \times 5}$: Vector to represent how much each problem affects to each x, concerned issue respectively.

‘x’ is used to represent important degree of each concerned issue. The score for each issue depends on the situation and environment of the area. Relevant people are required to discuss and give the score from 0 (not important) to 5 (high important). Herein, the study provides 5 issues as guidelines i.e. impact & urgency of problem, size of community & area affected from the problem, size of problem, damages caused from development, admit of people in the community. Additional issues might be added in order to expand boundary and get closer to the community’s requirement.

Prior to obtaining ‘w’, problems proposed by the relevant persons e.g. TAO officers and people are required. Public participation is crucial in this stage. Quality techniques and tools such as ‘small group’, ‘brainstorming’, ‘Pareto diagram technique’ might support and lead to effective and beneficial results. Once the problems are listed, it is necessary to re-visit them in order to prevent repeated or out of control issues. Next, the problems should be categorized in 8 items i.e. economics, social, infrastructure, water resources, political, public health, education- religion-cultures and natural resources& environment according to MOI regulation. Then considering in each problem, the team will vote to give the score representing how much each problem affects each x respectively. The score must range from 0 (no influential) to 5 (highest influential).

‘y’ as prioritization score for each problem is calculated by using equation 1. The process will be repeated until all problems are put into the calculation process. Once the calculation process is complete, problems can be ranked using the score of each problem. The highest scored problem will get the highest rank.

The Calculation Table for problem prioritization (as shown below) has been provided for ease of use. A sample of the calculation is given in the Table for the users to get an overview and idea. This will mitigate the problem during the implementation process. It should be noted that all components could be revised and adjusted to meet the users’ requirement.

Table 1. Calculation Table for Problem Prioritization (Adapted from Laewpapai B., B.E. 2541)

No	Problems	Impact & Urgency of Problem	Size of Community & Area Affected from The Problem	Size of Problem	Damage Caused from Development	Admit of People in the Community	Total Score (Sc)	Rank no.
		Weight = 4	Weight = 4	Weight = 3	Weight = 3	Weight = 3		
1.	Jobless	4 16	5 20	4 12	4 12	3 9	69	1
2.	Poor road	4 16	4 16	3 9	5 15	3 9	65	2
∴	∴∴	∴∴	∴∴	∴∴	∴∴	∴∴	∴∴	∴∴

3. Public participation

Public participation is encouraged officially at both national and local level. At the national level, the people's coordination has become a major concern since the Fifth Thai National Economic and Social Development Plan. 'What', 'Who' and 'How' have been used as key words.

The sense of each TAO is different in relation to the meaning of public participation. The key personnel cannot distinguish what activity the people should participate in, who should participate, and how to participate. Sometimes, the people develop a notion that public participation creates more problems than solving. From the discussion with 48 relevant persons in 5 TAOs, the results can be summarized as follows.

1. The level of participation: Respondents advised the participants to give recommendations to TAO for all activities except for 'problem collection, prioritization, intervention and project submission in sub-district level', in which the participants themselves should make decisions.

2. The characteristics of collaboration: 'To participate in the activity' has been encouraged for the participants. Some respondents advised the participant to join in 'management and coordination' in preparing project proposals and draft plan.

3. The characteristics of participant's feeling: 'Happy to help society' should be one of the major concerns of participants once they are involved in participation. Use of facilities has been a source of motivation for participants.

4. Evaluation stage: Evaluation should be provided in the outcome stage. Only the monitoring process should be evaluated due to its process nature.

5. Group sample: Type of participation should depend on activity. For example, village community should be involved in sub-district level. However, for some activities, the result could not give a clear picture of who should be participating. Finally, the researcher has to decide the proper solution.

6. Level of willingness: Participants should participate as usual without persuasion or insisting that it is compulsory.

7. Number of people to participate: Number of people should be in-group because more people lead to more varying ideas and comments.

8. Should participants have a payment: Remuneration should not be given for the participants in case of activities, which involve many people because TAO might not be able to pay for them all. The results obviously showed that remuneration however should be provided for small working teams in some activities e.g. preparation of project proposal.

9. Time to spend in the activity: Time has to be spent in all activities.

10. Activity type limitation: The result clearly showed that participation should not be limited.

11. Level of expectation in joining the activity: Expectation result from the participation should be set but it should not be too high to achieve.

12. Type of participation: Formal invitations are required for participants to make them realize their duties and responsibilities.

5. Conclusion and Recommendations

Conclusions and recommendations from the study are given as follows.

1. Since a TAO planning development process involves many levels e.g. national development plan, law, regulation and traditional and cultures in each local area, it is necessary to carefully conduct the process. An overview should be first considered before focusing on details. This will give a big view and avoid problems.

2. A rigid framework and manual are required to guide TAO in a proper way.
3. A local map is considered to be a part of an urban plan. It must match the urban plan. Mapping creates a clear illustration, therefore it should be made compulsory in the preparation of development plans.
4. Projects/activities should be covered in all TAO's duties and responsibilities. TAO shall realize what the real people's needs are before taking decisions to select projects. People should not only expect comfort and convenience from the development.
5. People should be more encouraged to participate in the process covering all stages i.e. preparing stage, developing stage and monitoring stage. Even though this might consume resources, it might be the only way to gain people's need and provide the right things back to the people.
6. Training/seminars should be provided to all persons to create self-awareness, give knowledge and allow them to participate in the planning process.
7. Time-line management can prevent made-up data usually found in the data collection process. Otherwise the outcome will be unreliable.

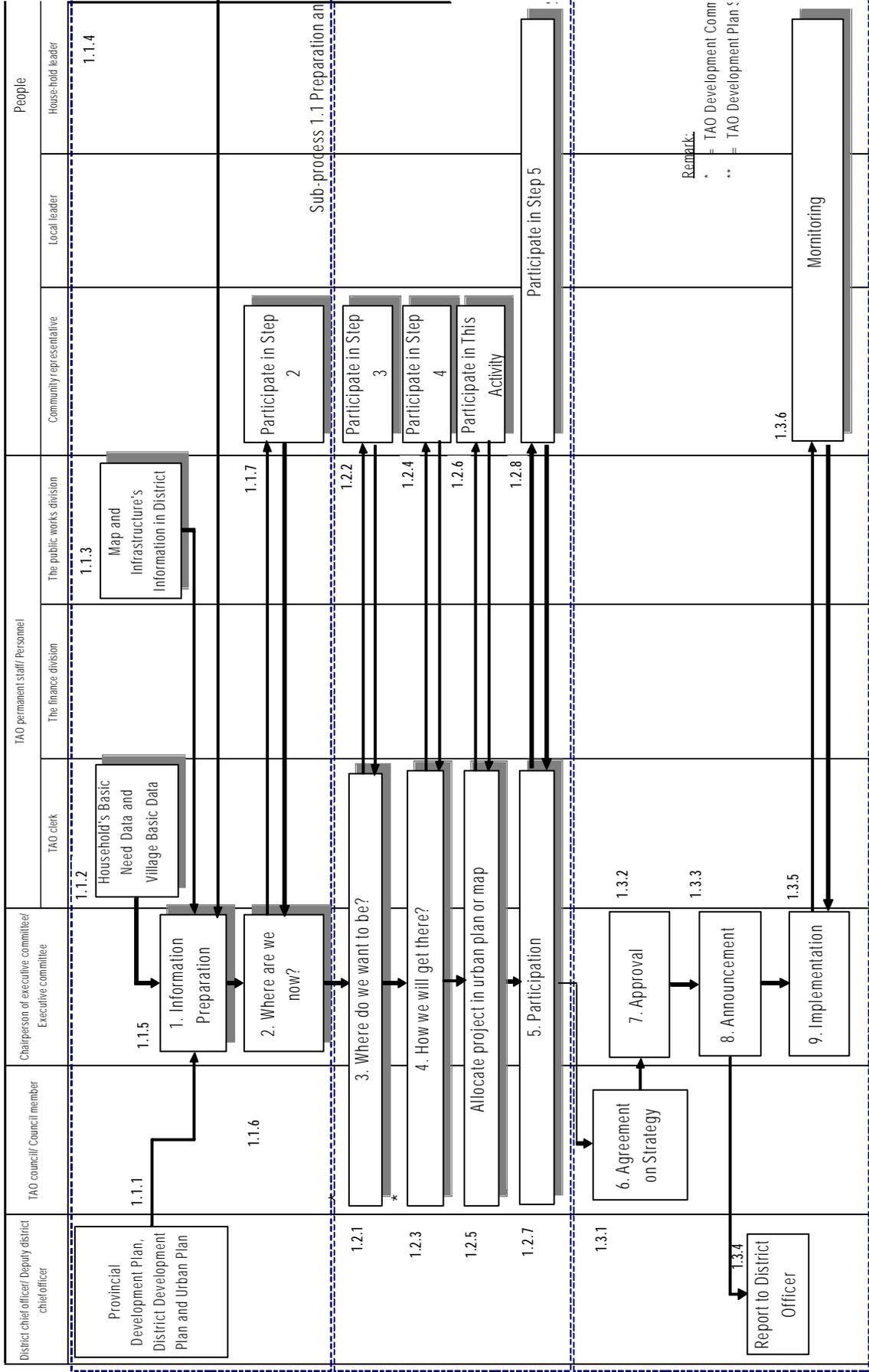
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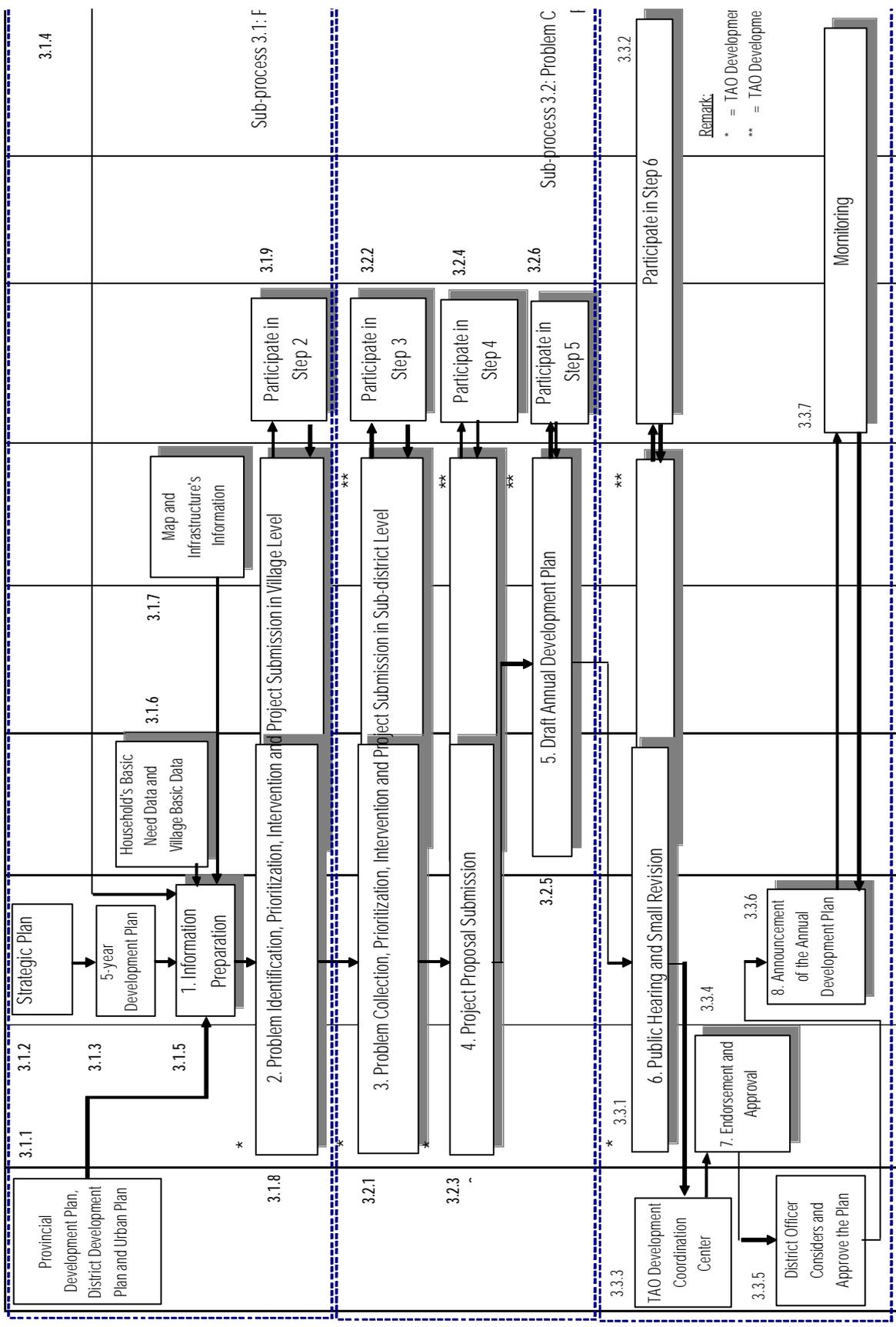
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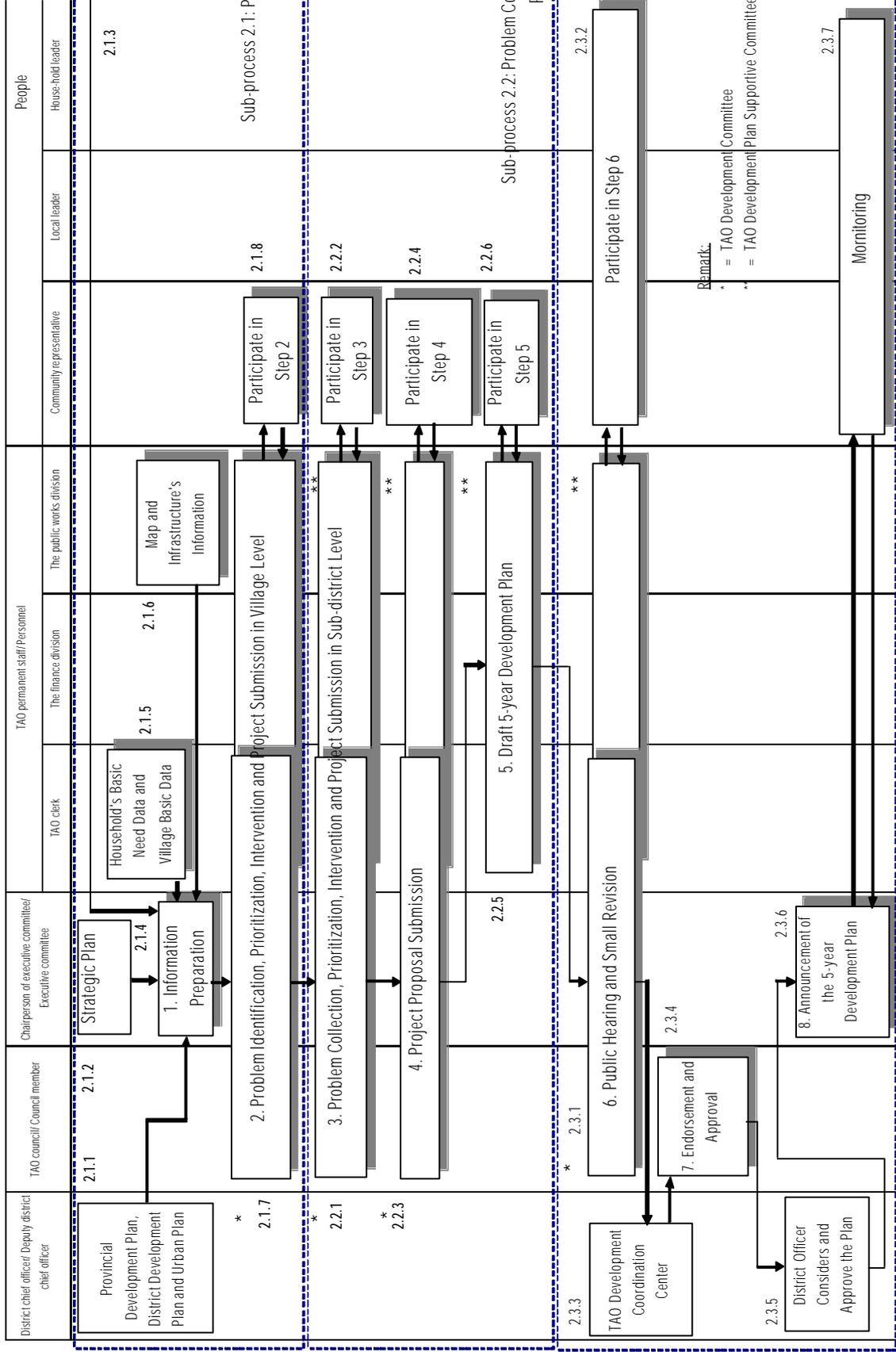
The Community Development Department (B.E. 2544), *Kor Chor Chor 2 Cor; Village Basic Data*, Ministry of Interior, Bangkok, Thailand.

Process of the Strategic Plan





Process of the Five-year Development Plan



Parameter	Public Participation Description	Public Participation Procedure				
		Village Problem Prioritization	Sub-district Project Prioritization	Project Proposal	Plan Proposal	Public Hearing
1. What	1.1 Level of Participation - Acknowledgement - Information provider - Suggestion giving - Decision making	o	o	o	o	o
	1.2 Implementation - Resources contribution - Administration & coordination - Enlistment	o	o	o	o	o
	1.3 Benefit (consequence) - Material - Social - Personnel	o	o	o	o	o
	1.4 Evaluation - Input stage - Process stage - Output stage - Outcome stage	o	o	o	o	o
2. Who	2.1 Community resident - Council member - Representative from election - District representative - Sub-district representative - Village representative - Household representative	o	o	o	o	o
	2.2 Local leader - Sub-district leader - Village leader - Community committee - Village committee - Senior people					
	2.3 Outsider - Foreign personnel - Business people - NGOs people - Specialist					
	2.4 Government personnel - Governor or district officer - Local provincial officer - Provincial technical people - Central technical people - Academic institution					

Parameter	Public Participation Description	Public Participation Procedure				
		Village Problem Prioritization	Sub-district Project Prioritization	Project Proposal	Plan Proposal	Public Hearing
3. How	3.1 Degree of voluntary - Free participation - Spontaneous - Induced - Forced participation - By Law - By Socio-economic condition - Customary participation	o	o	o	o	o
	3.2 Objective and style of participation - Infrastructure development - Locality development - Social planning - Social action	o	o	o	o	o
	3.3 Basic participation - Impetus - Incentive	o	o	o	o	o
	3.4 Form of participation - Organization - Organized - Unorganized - Way of involvement - Direct - Indirect	o	o	o	o	o
	3.5 Extent of participation - Time involved - Intensive - Extensive - Range of activity - Limited - Unlimited	o	o	o	o	o
	3.6 Degree of effectiveness - Effective participation - Complete - Partial - Ineffective participation	o	o	o	o	o
	3.7 Type of participation - Formal - Informal	o	o	o	o	o

Public Participation in 5years Development Plan



**3rd Regional Integrated Rural Accessibility
Planning (IRAP) Workshop
Bangkok, Thailand**

**Local Level Planning through Public Participation
in Thai Context**

Researchers: Mr. Narong Leungbootnak
Mr. Kriangsak Chatanantavet
Advisor: Dr. Chotchai Charoen-ngam
Sponsored by: International Labour Organization (ILO)

Presentation Outline

- **Goal**
- **Objective**
- **Problems Confronting the TAO Development**
- **IRAP Concept & TAO's Duties and Responsibilities**
- **The TAO Planning Process in Thailand**
- **TAO Development Plans**



Goal

To support the Thai Government in building the local capacity at Sub-district level in order to effectively development and apply local level planning to optimize benefits to the rural communities



Objective

- To provide a framework for the improvement of the existing TAO planning system
- To prepare tools, such as manuals to help TAO personnel in building the capability at local level

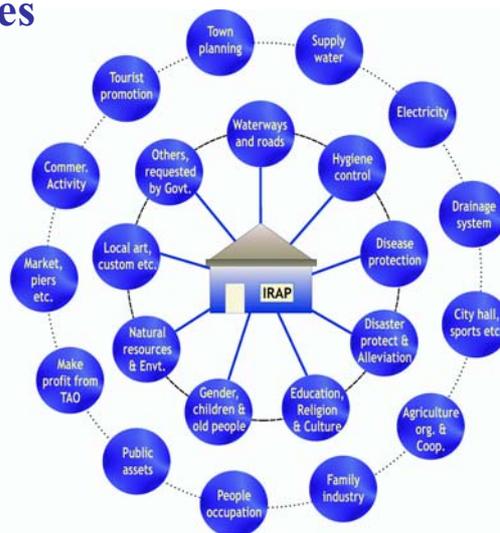


Problems Confronting the TAO Development

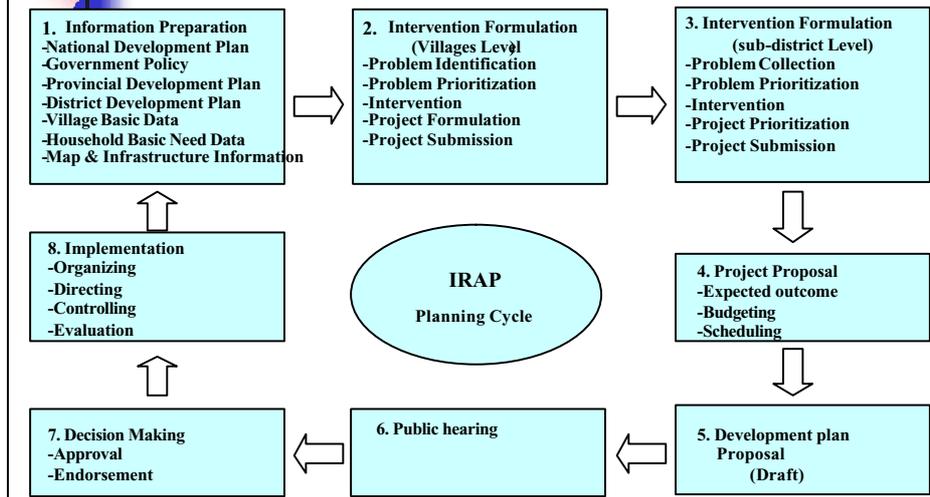
1. Ambiguous TAO working procedure
2. Unclear role and responsibilities of TAO personnel
3. Unwell-defined of public participation in supporting TAO activities
4. Incompetent in engineering techniques, management, and government regulation

5. Unclear of TAO working directions and goals

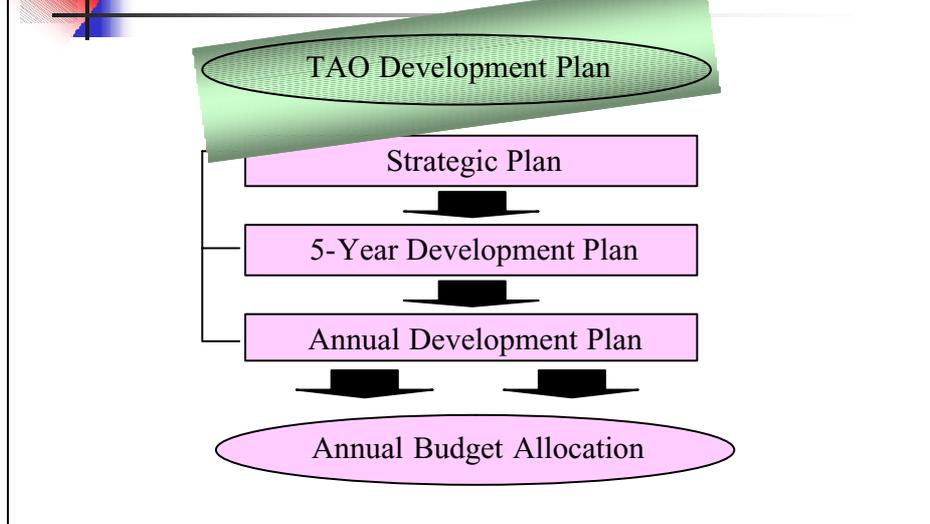
IRAP Concept & TAO's Duties and Responsibilities



The TAO Planning Process in Thailand

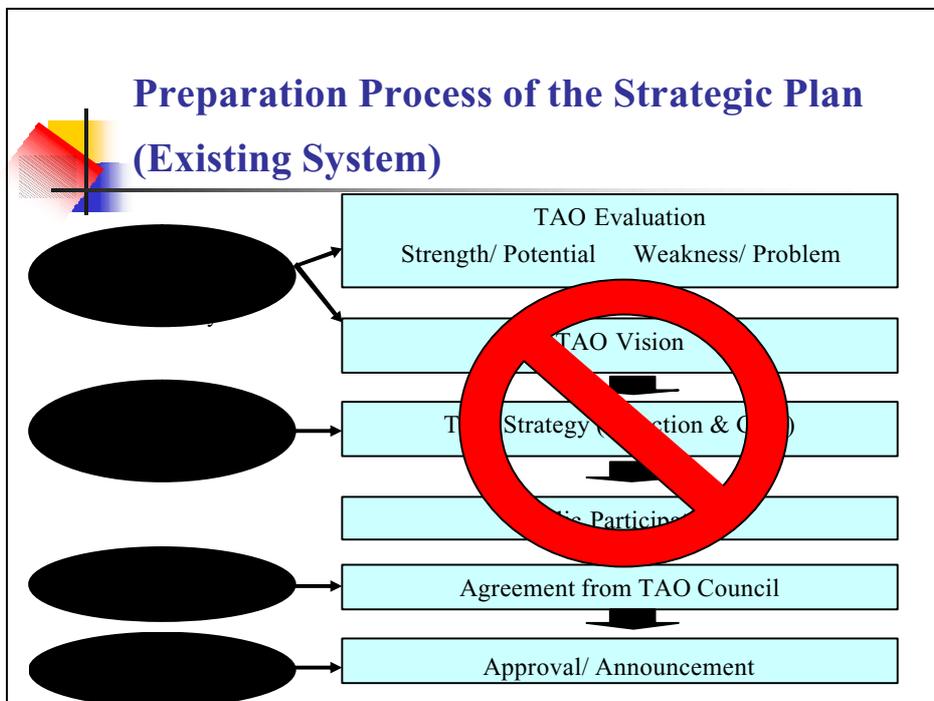


Structure of TAO Development Plan





TAO Strategic Plan



Preparation Process of the Strategic Plan (Revised)

Information preparation

Where are we now?

Where do we want to be?

How will we get there?

Implementation

Preparation Process of the Strategic Plan (Revised)

Information preparation

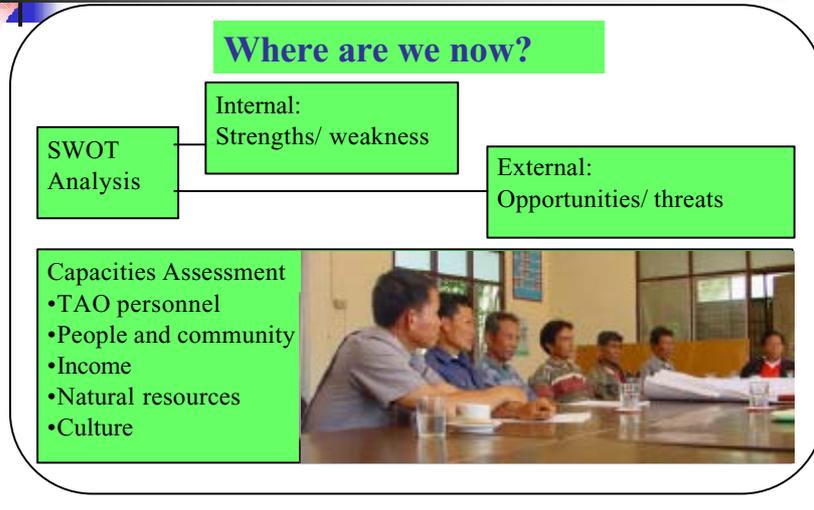
-National Economic and Social
development plan
-Government's policy

-Provincial development plan
-District development plan
-Provincial planning office

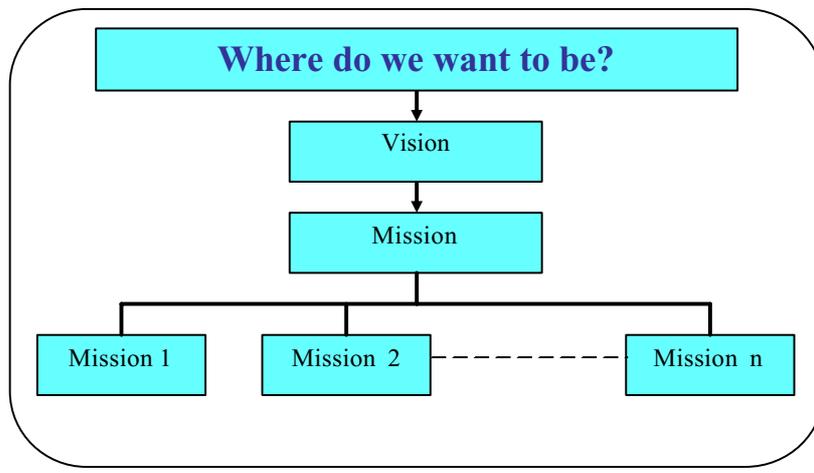
-District and TAO's maps
-TAO infrastructure plan
-TAO national resources plan

- Household's basic need data
- Village basic data

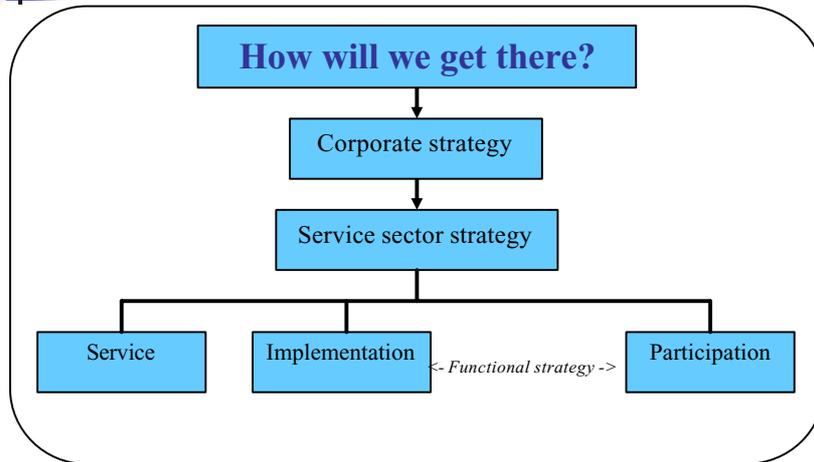
Preparation Process of the Strategic Plan (Revised)



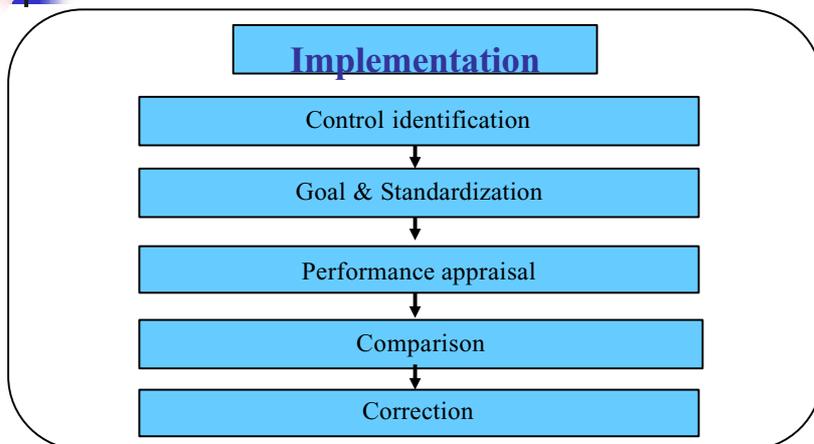
Preparation Process of the Strategic Plan (Revised)

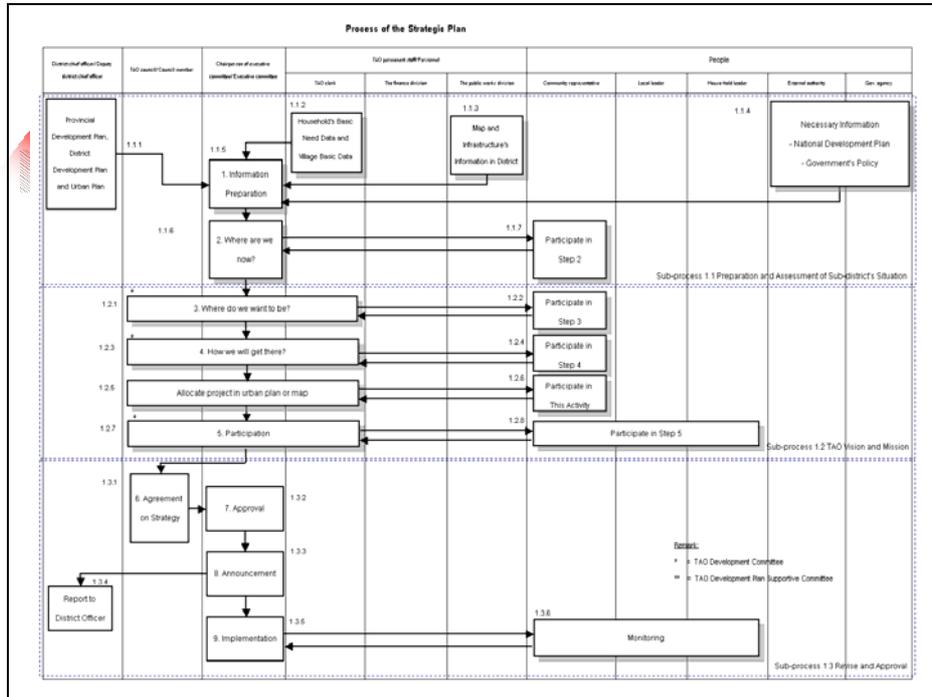


Preparation Process of the Strategic Plan (Revised)



Preparation Process of the Strategic Plan (Revised)





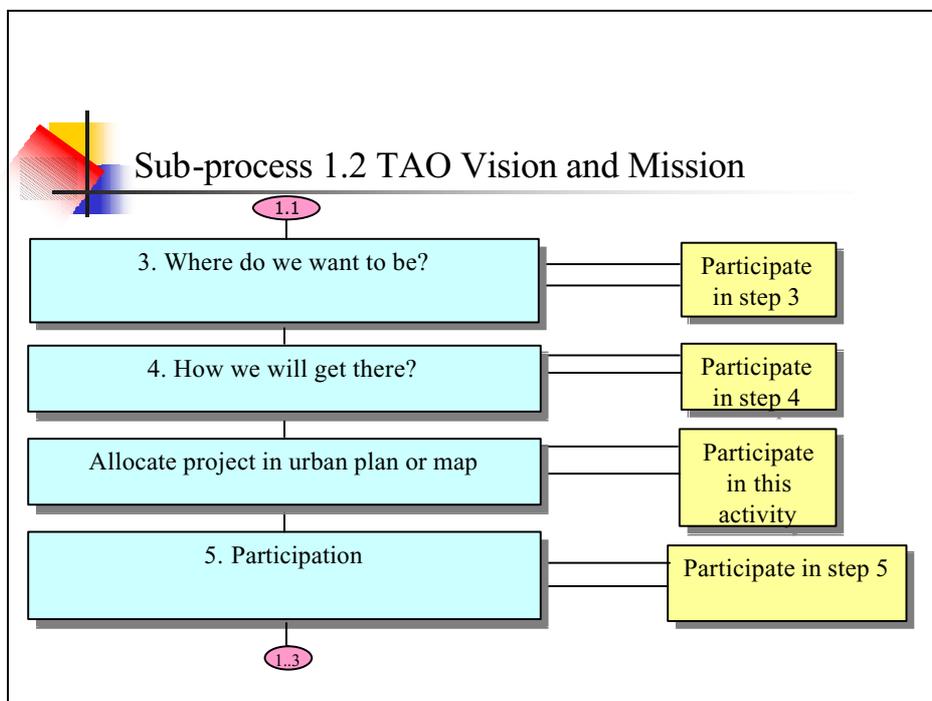
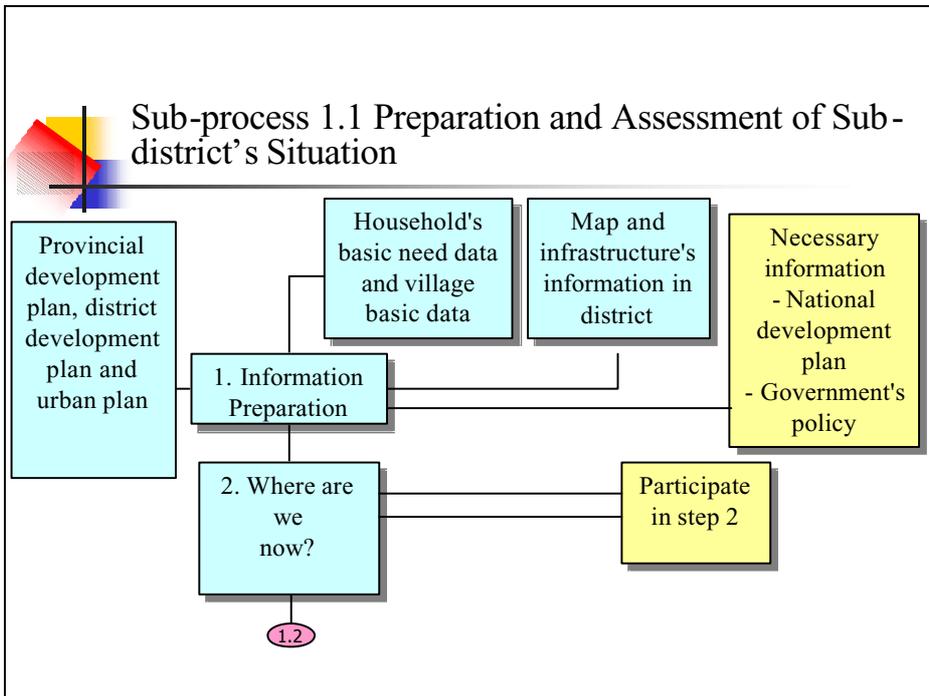


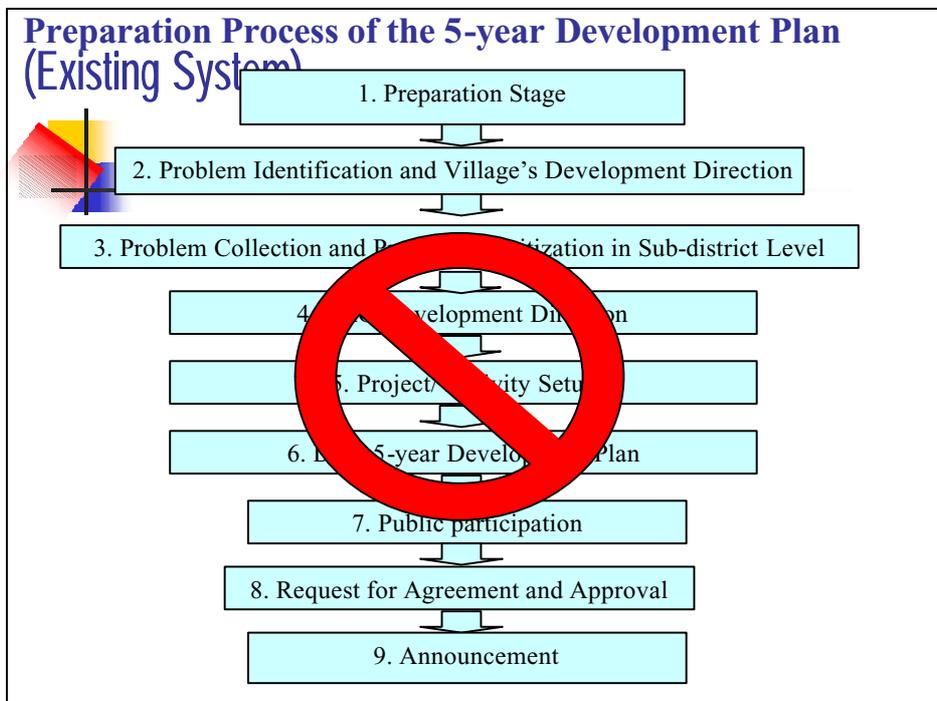
Preparation Process of the Strategic Plan (Revised)

Sub-process 1.1 Preparation and Assessment of Sub-district's Situation

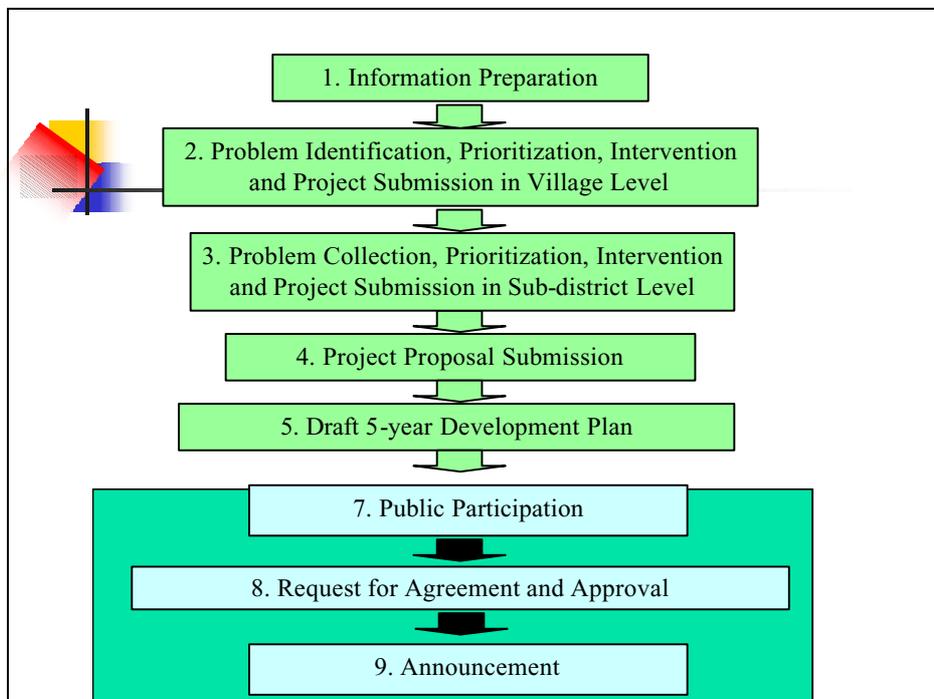
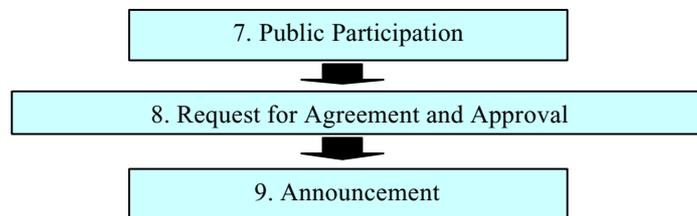
Sub-process 1.2 TAO Vision and Mission

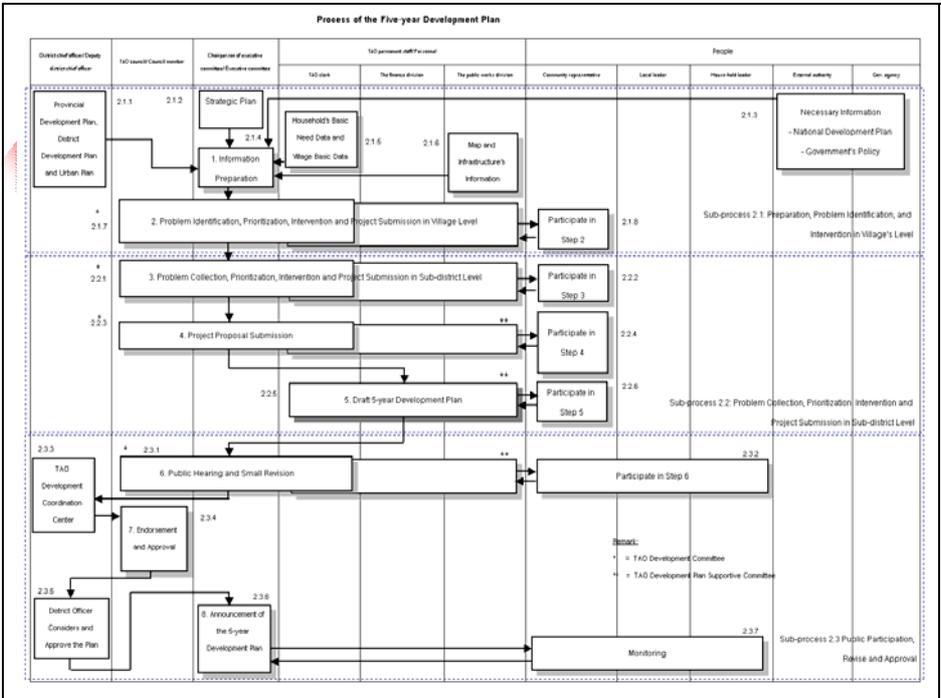
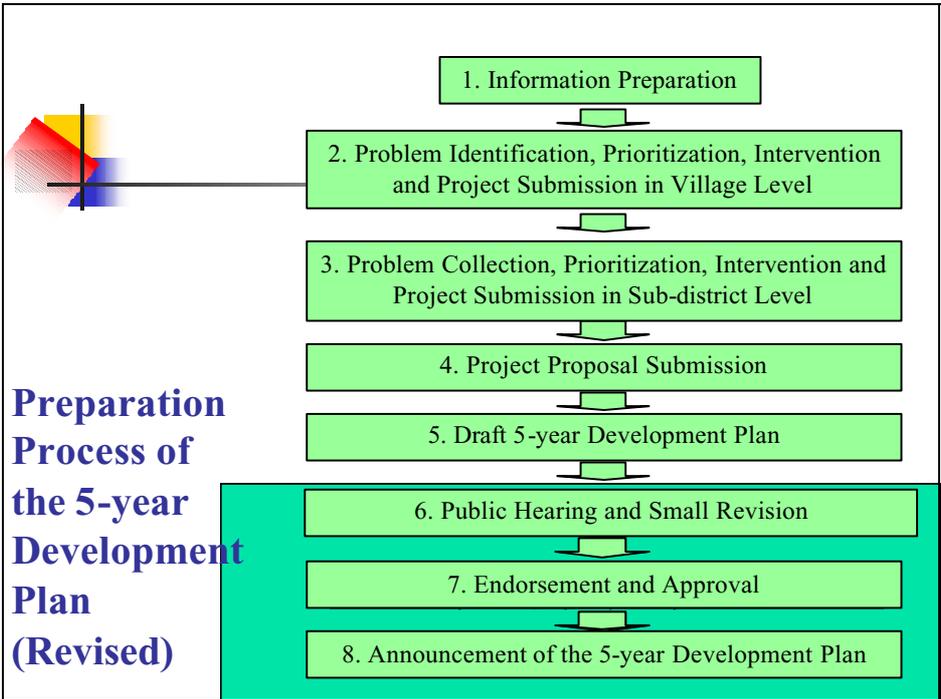
Sub-process 1.3 Revise and Approval





Preparation Process of the 5-year Development Plan (Existing System)





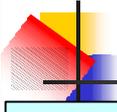


Preparation Process of the 5-year Development Plan (Revised)

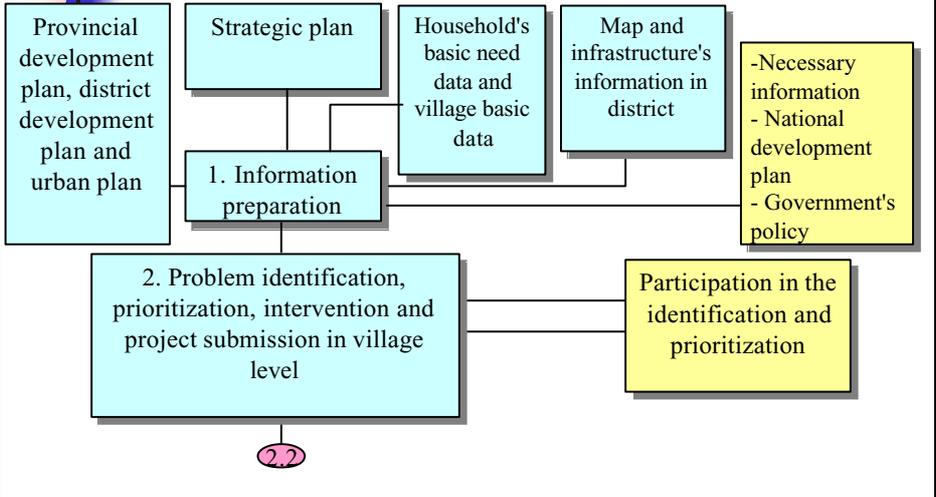
Sub-process 2.1 Preparation, Problem Identification, and Intervention in Village's Level

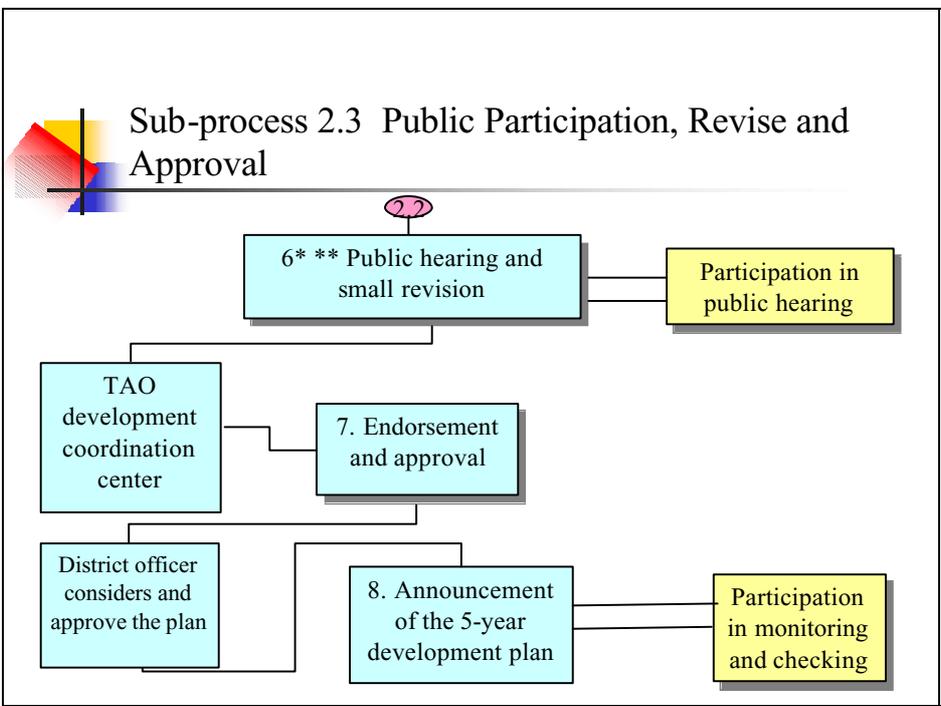
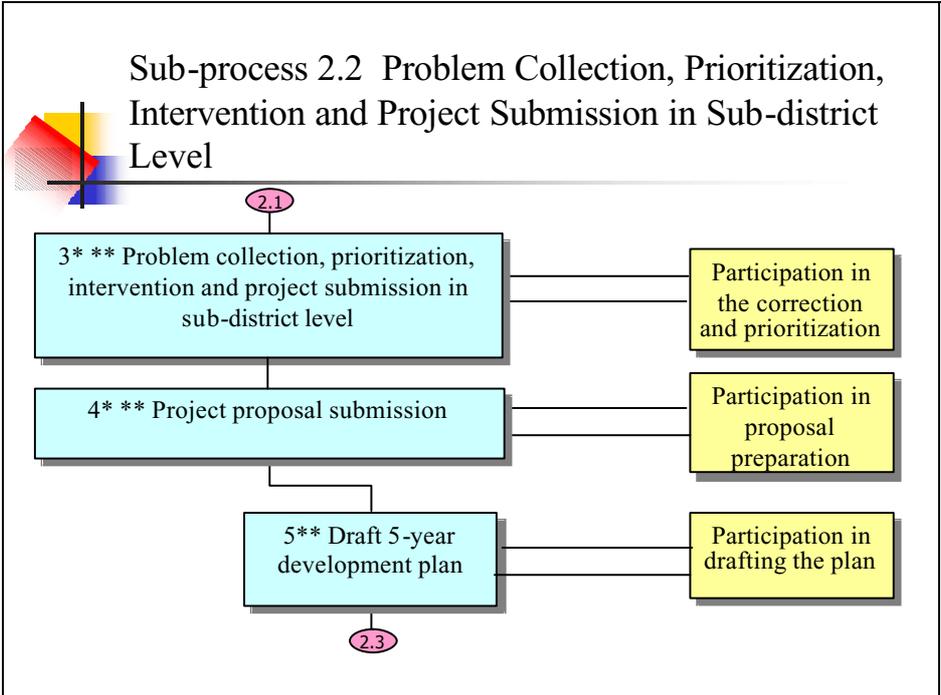
Sub-process 2.2 Problem Collection, Prioritization, Intervention and Project Submission in Sub-district Level

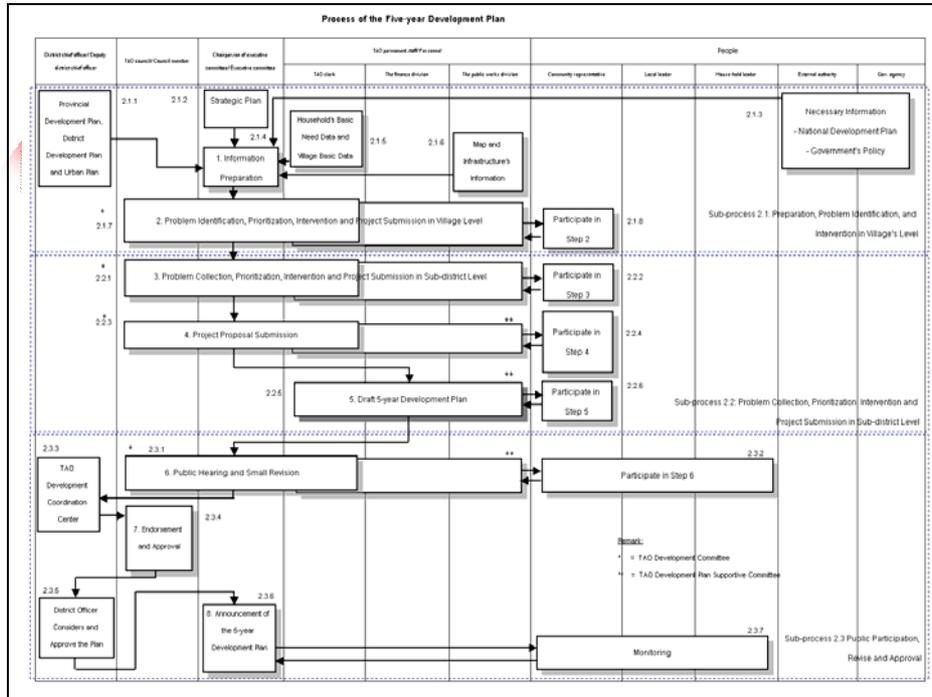
Sub-process 2.3 Public Participation, Revise and Approval



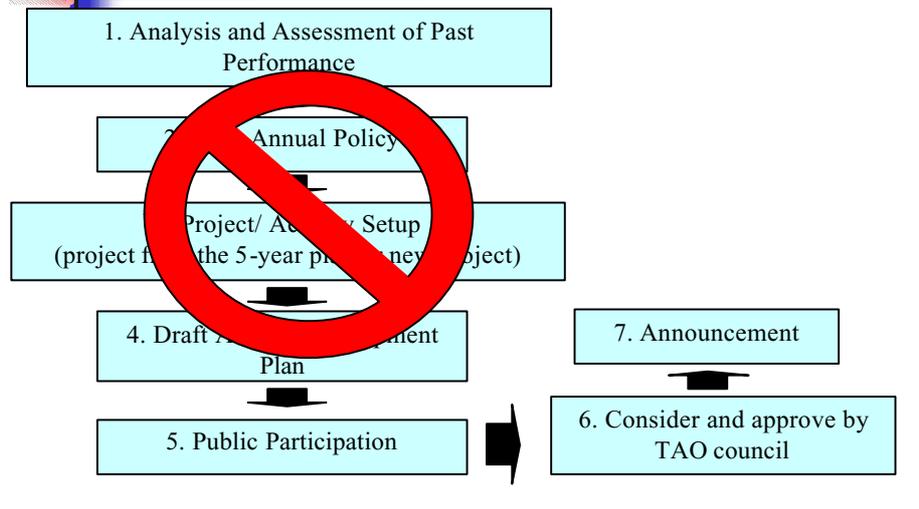
Sub-process 2.1 Preparation, Problem Identification, and Intervention in Village's Level



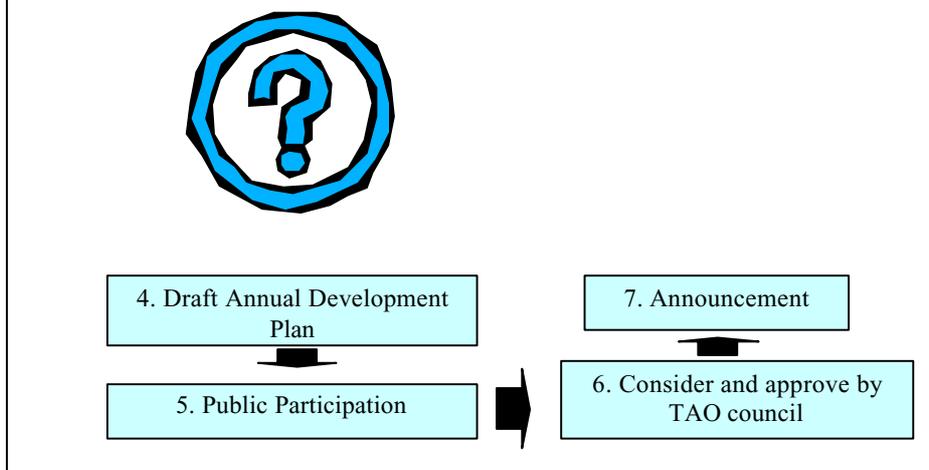


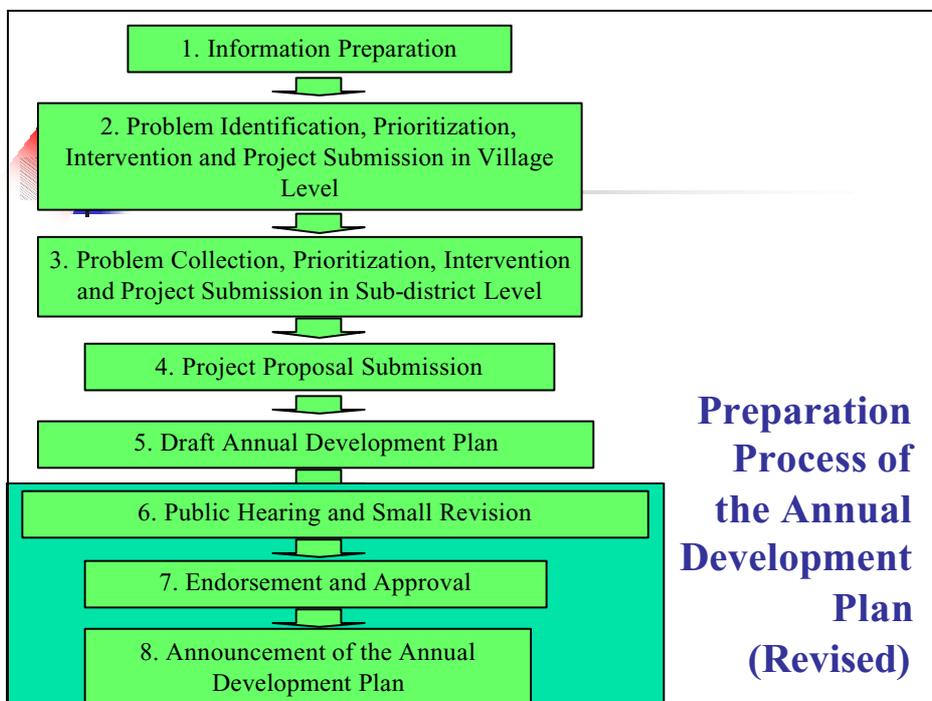
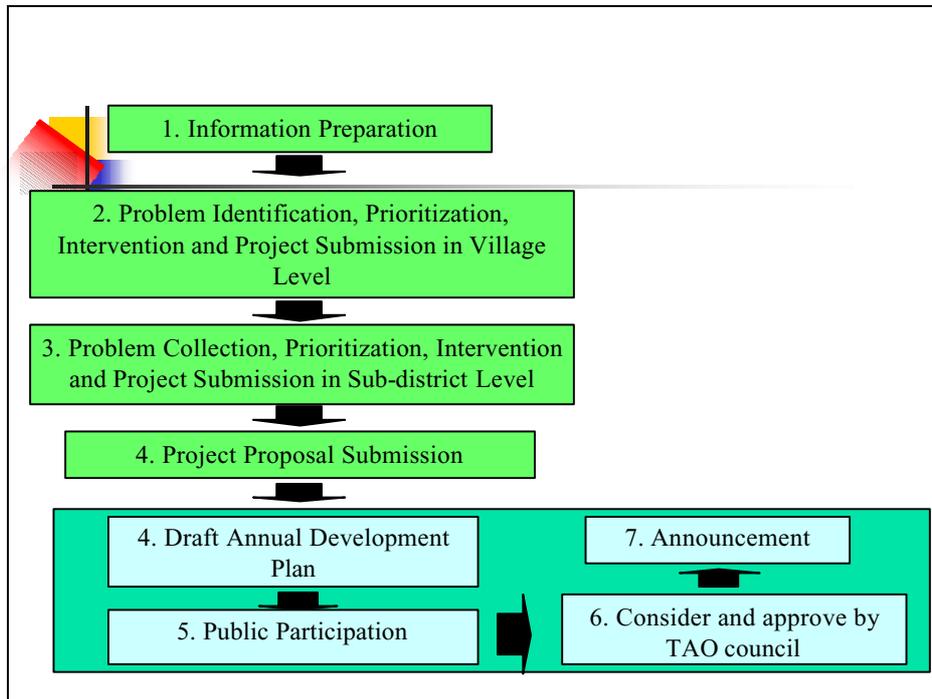


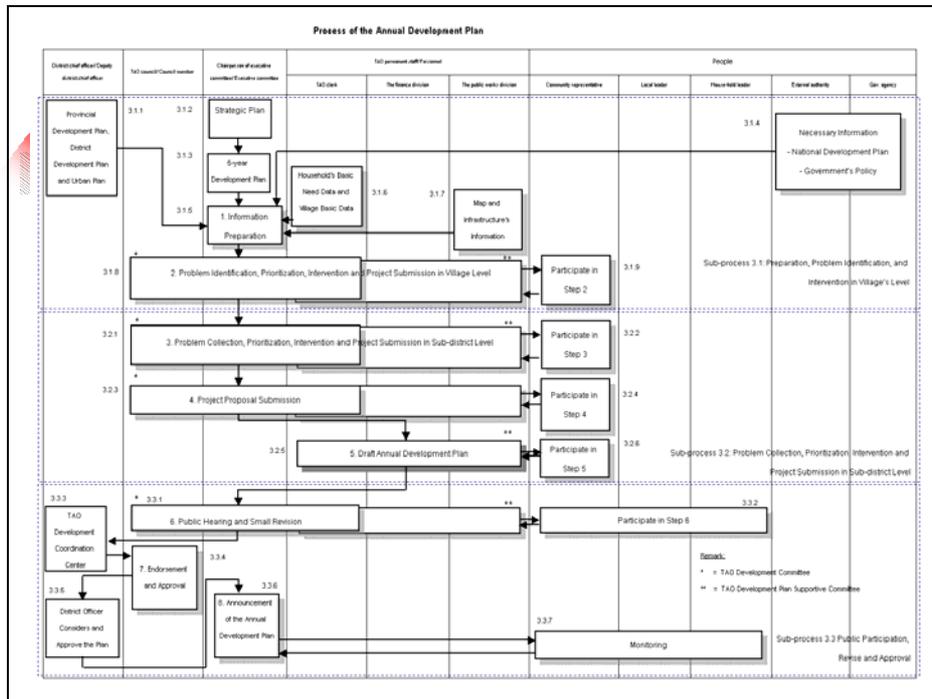
Preparation Process of the Annual Development Plan (existing system)



Preparation Process of the Annual Development Plan (Existing System)





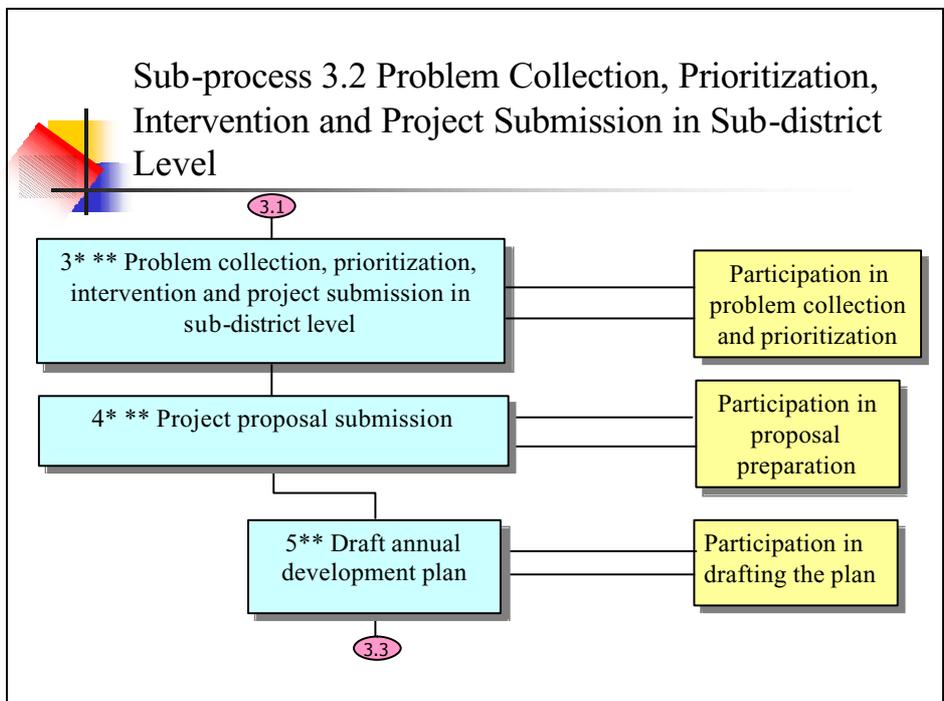
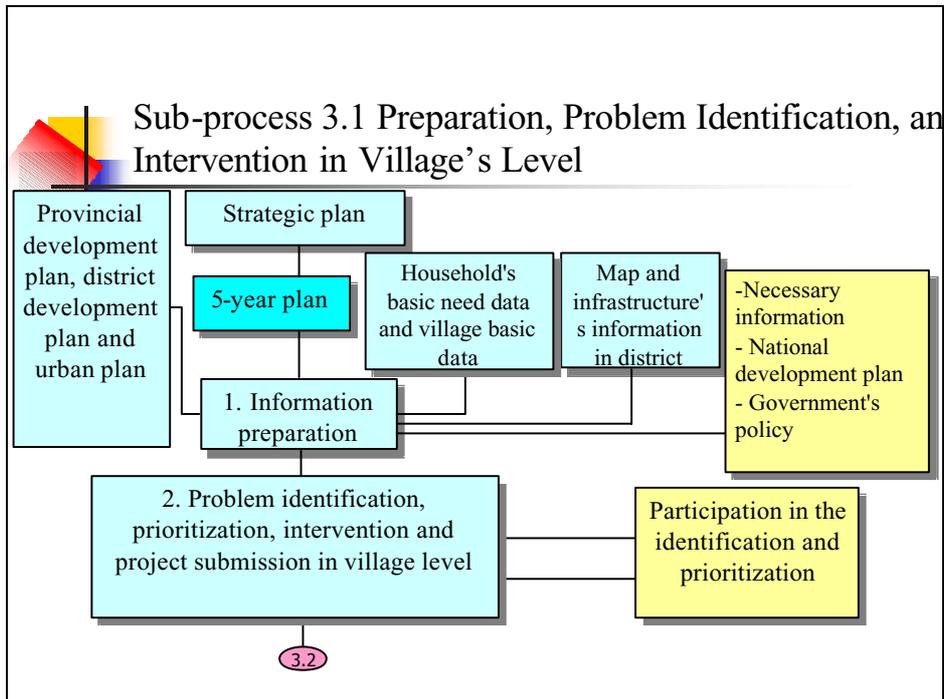


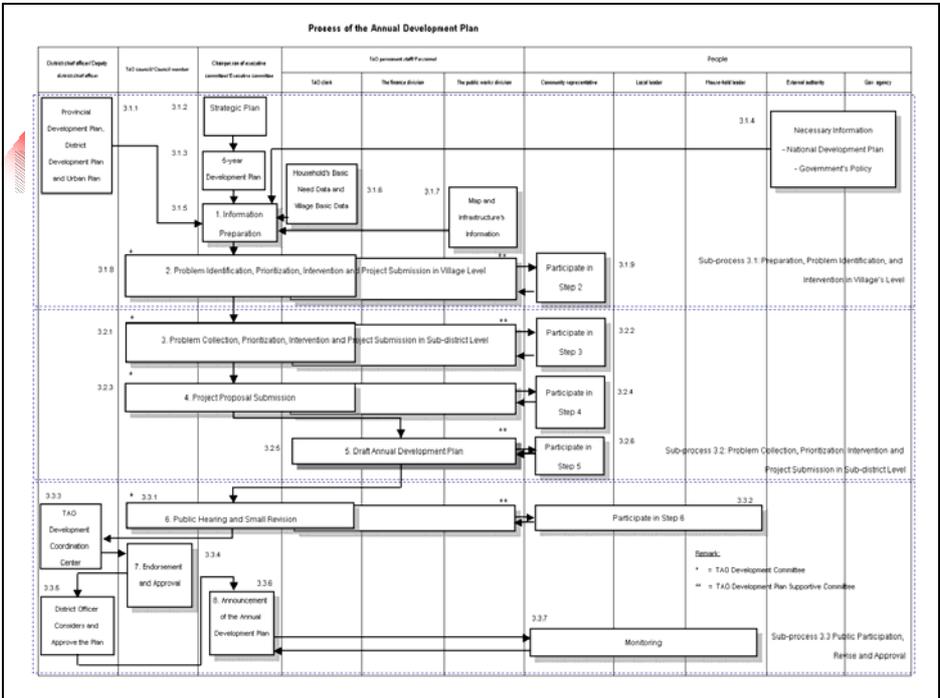
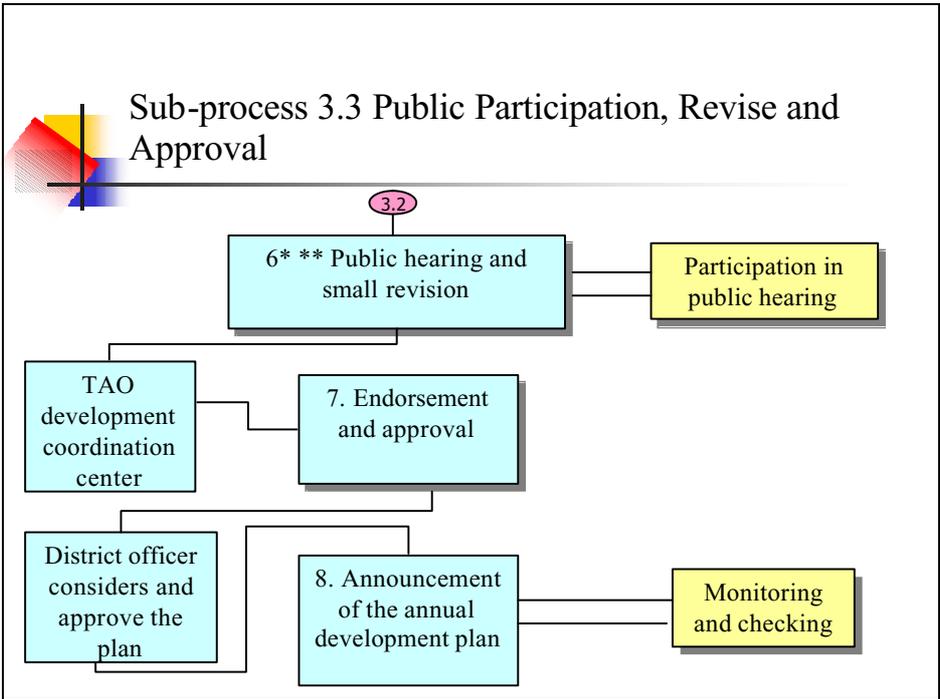

Preparation Process of the Annual Development Plan (Revised)

Sub-process 3.1 Preparation, Problem Identification, and Intervention in Village's Level

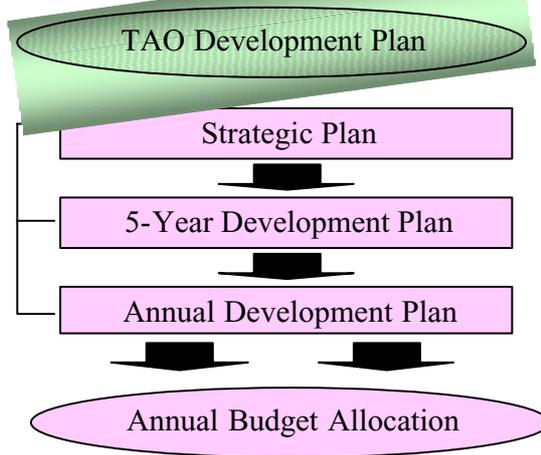
Sub-process 3.2 Problem Collection, Prioritization, Intervention and Project Submission in Sub-district Level

Sub-process 3.3 Public Participation, Revise and Approval



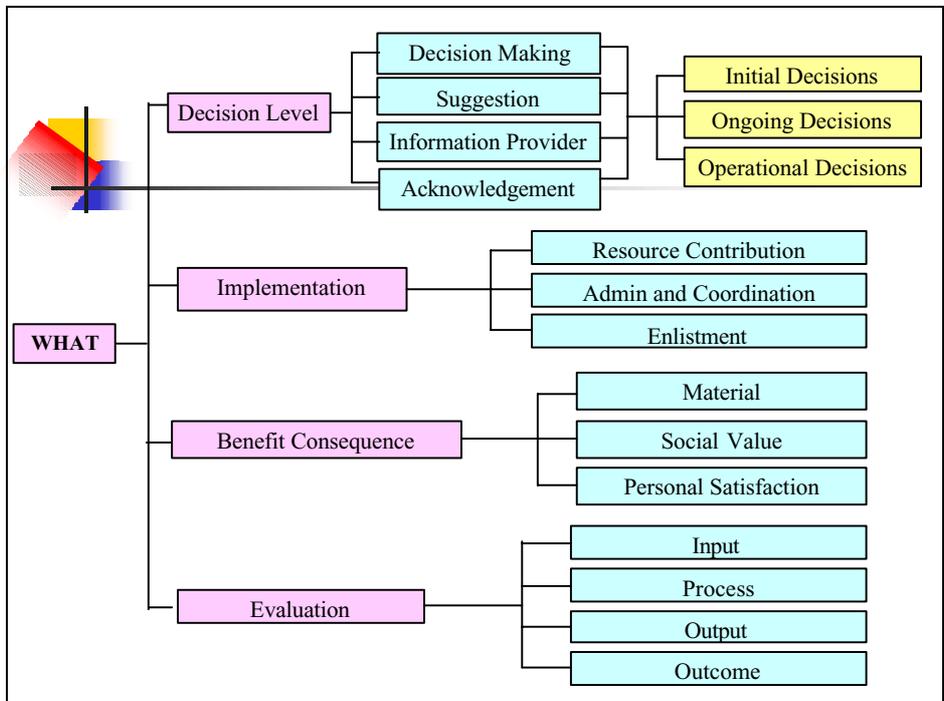
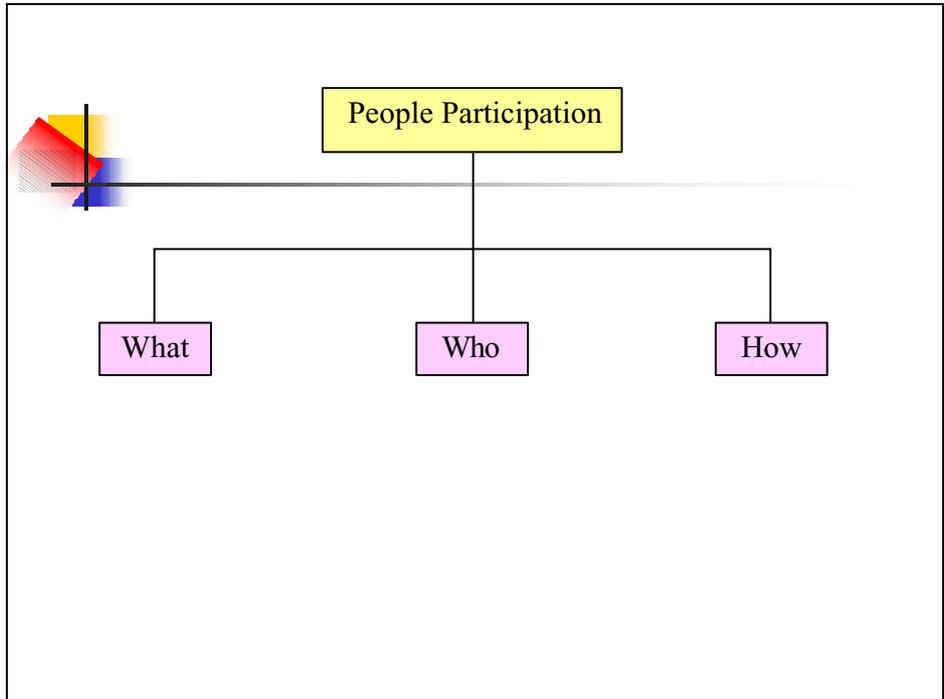


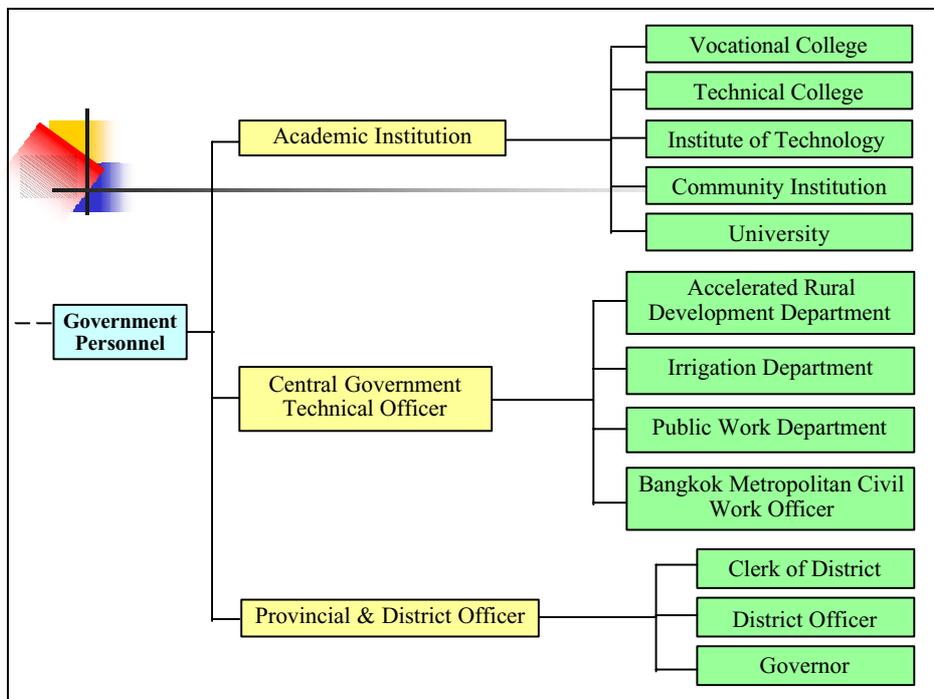
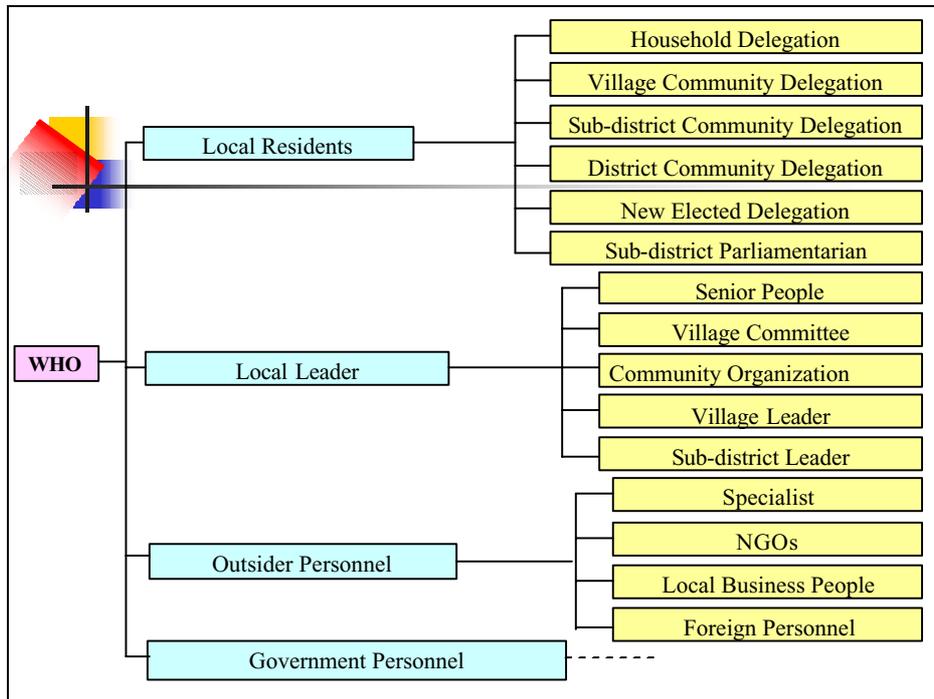
Structure of TAO Development Plan

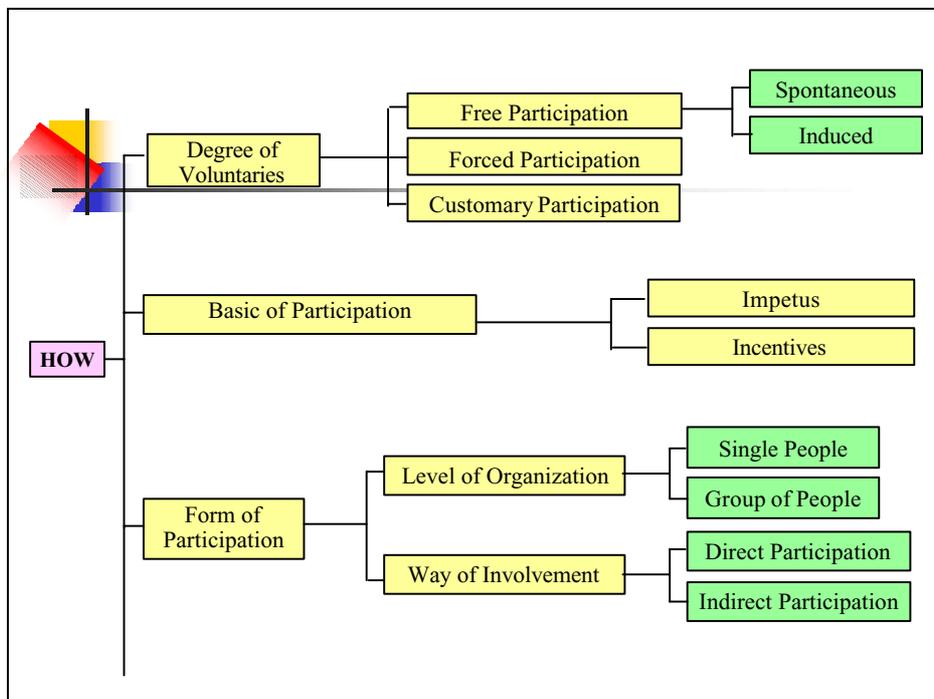
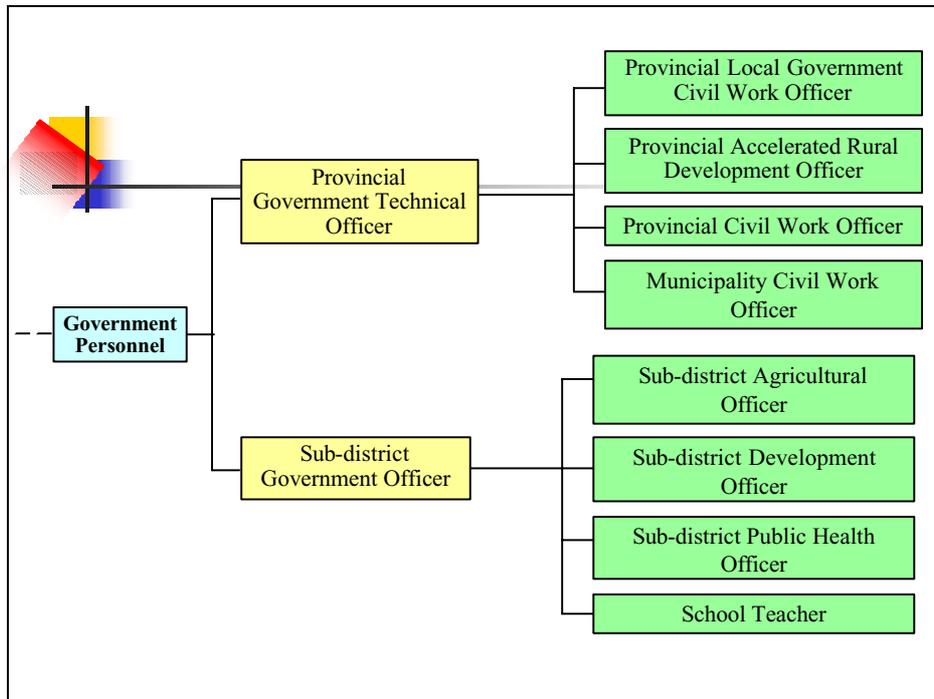


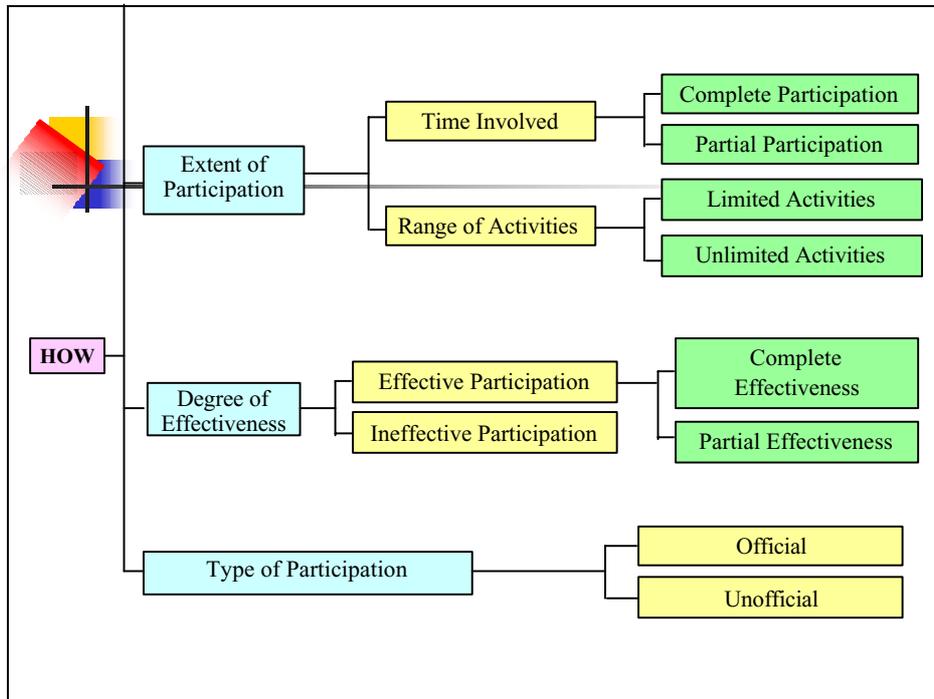
Question and Discussion











ANNEX 4

Indonesia

LESSON LEARNED OF IRAP IMPLEMENTATION IN INDONESIA

Data Collection, Mapping, and Priority Identification

Roberto Akyuwen, Latif Budi Suparma, Dony Soelistiyono

1. INTRODUCTION

The implementation of IRAP procedure in Indonesia has already rolled at least in three periods. The first period was in 1997-1998 of which the implementation conducted in two different provinces in terms of research project. The second period conducted in 2001-2002, the IRAP procedures implemented in terms of pilot project located in 2 kabupatens (districts) in 2 different provinces. The third period, this year 2003-2004, the IRAP procedures are implemented in 17 kabupatens in 3 different provinces.

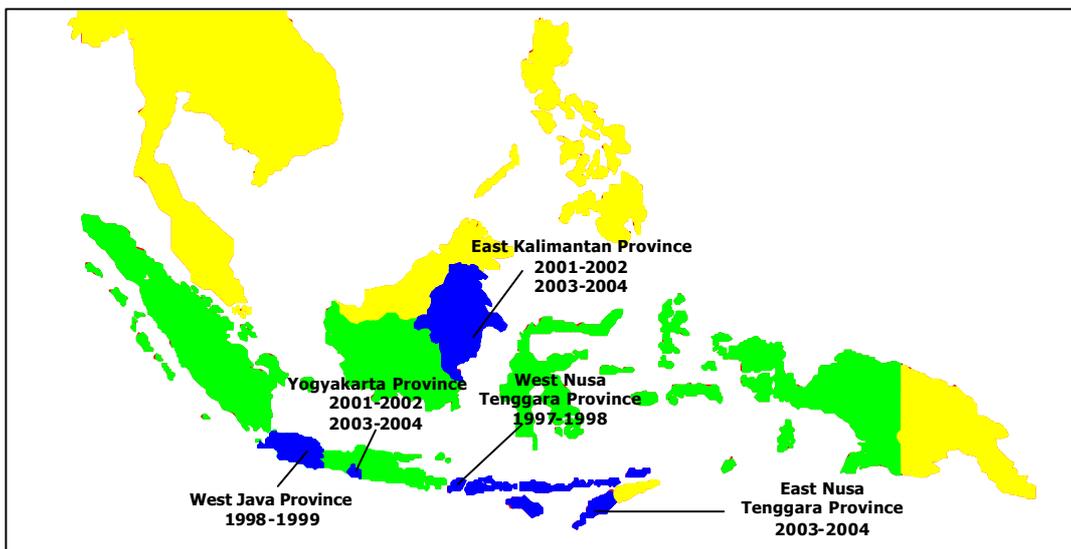


Figure 1. IRAP Implementation Areas in Indonesia

This paper is attempted to give information of the enhancements and/or any modifications of IRAP methods performed based on the experiences of the implementation in Indonesia. Three main subjects will be discussed, i.e. data collection, mapping and priority identification. The subject in data collection process will be discussed is mainly on the instrument used in the field, i.e. questionnaire. In the mapping section, the discussion will be focused on the requirement of the standardization of the drawing map accessibility. On the other hand, in terms of priority identification, the subject will be argued includes rank fulfillment, accessibility value calculation and identification result presentation.

Apart from three main subjects above, shortly will be presented the state and important meaning of IRAP instrument as a complement of design procedure applied in Indonesia. Furthermore, the facts were discovered not only during training, data collection and mapping, but also during database compilation and priority fulfillment, will also be discussed.

2. IRAP AND EXISTING DEVELOPMENT PLANNING PROCEDURE

The bottom-up development planning used in Indonesia based on the Decision of the Ministry of Home Affair. This procedure contents of 6 stages, beginning from the development discussion at village level through the national development consultation forum. Although, theoretically, this procedure aims to gather the aspiration of program proposal and development project from the lowest level, however, in fact, it is very bureaucratic, resulting in unable to represent the people need especially in village level. One of the main causes is lack of appropriate instruments, simple and easy to use by village people (user friendliness) in the identification their basic infrastructure, social and economy needs. At this strategic state and important role would be taken part in of IRAP.

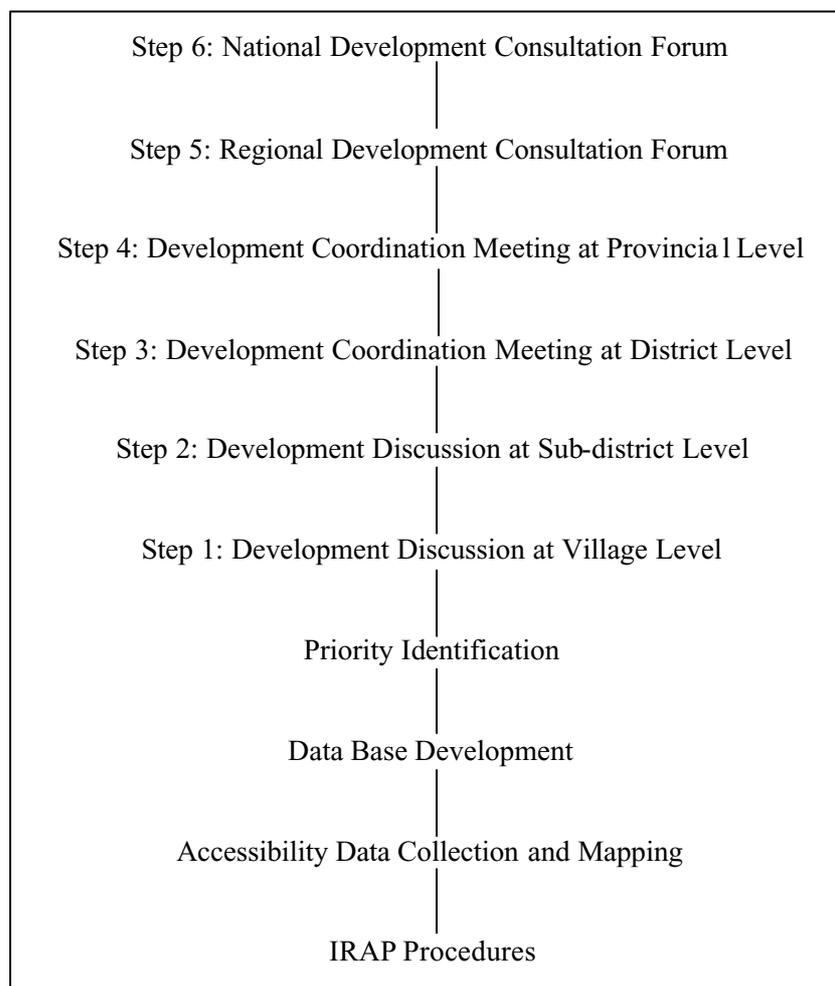


Figure 2. IRAP and Existing Development Planning Procedure in Indonesia

As the instrument of the development planning of the village infrastructure, the implementation of IRAP procedures subjected to equip and/or optimize the existing planning procedure, and not to replace it. Using its comprehensive and integrated characteristics, but simple and ease application, the IRAP implementation is expected to

produce project proposals that aimed to improve the village dweller accessibility on the based of rational and actual situation.

3. IMPROVED METHODOLOGY AND LESSON LEARNED

The IRAP implementation in Indonesia in practice is starting with signing the cooperation agreement between the IRAP project with local government. The aim of this agreement is due to all the benefit activities have a high politically support from the decision maker at the regional level. Moreover, in the agreement is also cover job description and responsibilities of each party. As the highly attention from the local government, in the period of 2003-2004, the IRAP implementation is starting to encourage the budged contribution from local government and private companies.



Figure 3. Cooperation agreement

The implemented IRAP methods in Indonesia basically as a modification from the existing methods applicated in several countries as Philippines, Thailand, and Laos; and also paying attention to the experiences of the last periods of the implementation in Indonesia; and also the region characteristics (includes geographical and inhabitant characteristics). The other important factor should be considered is the people capability and the involved government staffs in all IRAP process. The capability of staffs and people at the village level will influence the data collection, mapping, accessibility score calculations, and presentation technique processes; whereas the capability of the planning staffs at district level will set up in the data compilation and improving the accessibility map processes, and also in the selection and preparation of priority project proposal.

The facts in the field indicates that the coordination of all involved parties, from village level, sub-district level, to district level, will be the key in the optimum planning process in general and IRAP implementation procedure. As the result of this, practically, the planning staffs of district level are actively involved to monitor in every step of IRAP implementation at every level. This involvement is expected to improve the comprehension to the people accessibility situation in rural areas, therefore resulted in program and project priorities that enhancing the problem and fulfilling the accessibility improvement on the people basic goods and services, socials and economic.

3.1. ACCESSIBILITY DATA COLLECTION AND MAPPING

3.1.1. T-1 TRAINING

According to the IRAP procedure, all the activities are starting with data collection and accessibility mapping training, called T-1 training. Participants in this training are consisted of planning development staffs at district level and the connected institution, government staffs and the institutions that involved in the development planning process at sub-district and village levels, and the data collector and accessibility drawer. Total numbers of participants are in the range of 25 to 40 people.

The issued subject covered the basic concept of IRAP, survey instrument (questionnaire) and accessibility mapping. In addition of the T-1 training subject matter, the introduction of GPS (Global Positioning System) application is also presented especially for the development planning staffs at district level. The main objective of this additional subject is to provide the ability in improving and completing the outcome map, with the consideration that the existing basic maps are generally lack of information and decrepit.

In the full one-day training, the subject presentation is performed into three types of media, i.e. formal training module, cartoon version module, and compact disc. Every presentation session is ended with discussion and question and answer within the appropriate time allocation, hence all the problems can be completely discussed.



Figure 4. Mapping exercise

The mapping accessibility in practice session is also performed involving all the participants actively. Participants are divided into small groups consists of 4 to 8 people. According to the given material and trainer instructions, every group prepares the accessibility map in size of 50 cm x50 cm. The complete maps subsequently stick on the wall in the training room for discussion.

3.1.2. DATA COLLECTION

Prior the survey starting, the coaching activity is conducted for 1 day focused in to the data collector and map drawer. The objective of this activity is to refresh all subjects in T1-training, and also to decide the activity agenda and detail job description individually.

To ensure that data collection and mapping process is good taking place at local level, in the terminology of the pilot project period of 2001-2002, the data collector are consisted of the combination from three elements. First element is staff and village inhabitant that involved in the development planning process. The second element is the district development planning staffs, whereas the third element is the undergraduate student recruited as temporary staff of IRAP project. In practice, the second and third elements are more perform as supervisor. Overall, the number of data collector member is 5 people in every village.

In the period of 2003-2004, all the enumerator is consisted of government staff and inhabitant that involved in the development planning process at village level. The supervision is fully conducted by the development planning staff at district level that referred to as IRAP project counterpart. Whilst the IRAP staff monitors periodically at the beginning, middle, and the end of the data collection process to ensure that all the activities are running in accordance to the planning, and collected data are valid.



Figure 5. Data collection process

The number of villages to be the location of the IRAP implementation procedure in Indonesia are 2 villages in 2 different sub-districts, hence overall are 4 villages in one district. Different from other countries, survey in accessibility data collection is conducted at village level, in Indonesia survey is performed at 'dusun' (sub-village) level. This decision is due to that village area in Indonesia is wider (outside Java island) with higher population (in Java island). Moreover, in period of 2001-2002 in several pilot areas, survey was also conducted at household level to validate the data, due to that the respondent at sub-village level consisted of some stakeholder.

Soon, after all the accessibility conditions at sub-village level were compiled in village level data subsequently carried out data verification in a meeting forum at village level. In this forum all collected data is presented to get any comment from the parties involved in the development planning process and inhabitant in general. Based these on the comments and some discussion, then data correction is conducted when necessary.

3.1.3. SURVEY INSTRUMENTS

According to the scope areas, the survey instrument used in the accessibility data collection process is questionnaire for sub-village level. The newest questionnaire will be used in Indonesia is consisted of 10 pages. The first page includes the survey area and respondent identity. Pages 2 to 10 consisted of 13 parts, i.e. general characteristics, mobility, private transportation, clean water, electricity, education, health care facilities, agriculture, livestock production, fishery production, small industries, markets, problems, and priority projects. The complete questionnaire can be seen in the Annexes.

In the general characteristics includes 2 sections, i.e. population and livelihood sources. The information will be catch in the population sub-section is number of population and number of household, whereas in the livelihood sources sub-section, the respondent is asked to fill the types of livelihood sources and the household involved in every livelihood sources.

There are three sub-sections in the mobility section, i.e. main destination, public transportation, and private transportation. Main destination sub-section attempts to describe the accessibility problems (pavement quality, destination, time, cost and transport mode) of the people to reach centre of the village, sub-district and district. The public transportation sub-section asking the types of appropriate public transport services and its intensity. In the last sub-section, private transportation, it is aimed to dig information in private car owner in a household.



Figure 6. Water collection

Wet season and dry season are two sub-sections consisted in clean water section. These two sub-sections includes the same questions in each section of which linking between the used clean water resources with number of households user, distance and travel time needed to catch the water resources.

Most of the households in Indonesia, including in rural areas, the used of electricity power is sources from the State Electricity Enterprise. Merely of the population dwelled remote areas, especially in outside Java Island, still utilize other sources. Consequently, the main information will be caught in electricity section is the number of household user and average service time of the electricity, especially from the State Electricity Enterprise.

In the education section, respondents are expected to inform the accessibility condition of the school-age children travel to elementary and secondary schools. The first matter would be identified is the existence of those two level school in a sub-village. Subsequent to catch this information, and then be questioned in accordance to the type of used transport mode, distance, travel time and travel cost to school.

Same as the question with the education section, the first part will be questioned in the health care facilities is its existence in the sub-district. The next question is the accessibility condition to reach the facility. In this part is also questioned the types of appropriate facilities and the number of paramedics servicing people.

In the agriculture, livestock production, fishery production, and small industries sections, basically comprise the uniform questions. The question are aimed to link between the type of produced commodity with number of involved household, type of production to be sale, and the accessibility problem faced in order to sell the product. The accessibility problem will be identified includes road quality, distance, product haulage, and travel time and travel cost. According to the fact, especially in agriculture section, it is also questioned in terms of type, amount and capacity of the post-harvest facility.



Figure 7. Fishery activity

The market in the market section is defined as a market that trading the daily consumable goods. The existence of the market is essential; hence need to be questioned about its existence, location, and difficulty level to reach. It can be predicted that the problem will overcome if there are no market, at least one in a village or sub-village in Indonesia. The road qualities at different seasons are different, transport mode, distance, time and cost would be the decisive component of the people accessibility to reach the market.

The last information in the questionnaire is consisted in 2 sections, i.e. problems and priority projects. The problem section is divided into 2 sub-sections, i.e. accessibility problems and non-accessibility problems. These two sub-sections can be asserted as a compilation from some information in accessibility conditions that overcome in the previous sections. The identified problems in every sector are classified into 3 levels, i.e. no problem, small problem, and big problem. If the accessibility problems were big, it would be explained shortly.

In the priority project, there is a new substance as a modification from the last questionnaire. If in the last period it was only discussed the series of the project becoming the priority, in the new questionnaire included the gender consideration. Appropriated separate column for male and female to define the projects priority in accordance to each point of view. Although in practice it consume an extra time, but this cannot be avoided

when required the valid information and development planning. The fact indicated that the female has a significant consideration in the rural development; hence they have to be involved in the priority definition to overcome the development problems, especially in improving the accessibility.

The overcome problem in the data collection is generally in accordance to the difficulty of respondents in answering some questions, and the patiently in completing the questionnaire. Some respondents found to be difficult in identifying precisely the distance and travel time to reach a certain facility. Other respondents tend to inconsistency when the question at the middle and last parts of questionnaire. To be up against this conditions, hence in many cases it is necessary to visit more than 1 time for the same respondent. In addition of this, some corrections are necessary conducted by data collector himself. The improvement then informed when data verification held.

3.1.4. ACCESSIBILITY MAPPING

The main problem faced in accordance to the accessibility map production process is unavailable of the most recent basic map with sufficient scale. Generally, the available basic maps are decrepit, not taken care and in unsuitable scaling to be utilized especially for village map. This circumstance effect to project staffs together with district and village personnel have to produce the basic map manually hence can be used as a basic map for producing the accessibility map. In this matter, the introduction GPS, as additional subject, introduced at the end of T-1 training. By utilizing GPS, the produced basic village map at least has some responsibly coordinate points.

The skill in producing the accessibility map is the next problem. Considering that the proposed techniques and materials are relatively new for villager, hence it is still necessary in assistance intensively from the IRAP project staff. In the period of 2003-2004 and the following periods, it is expected that the intensive assistance can be conducted by counterparts at the district.

In addition to map and skill, the time allocation is also becomes another constraint. The staff and inhabitant at village level generally have a limited time, due to most of their time is allocated for living, i.e. as farmer or fisherman. To solve this problem, the producing process is conducted in their suitable time, generally in the evening to late, or in holidays.



The accessibility map producing process is carried out parallel with data collection process. In the field practice, this activity is performed in steps in between visiting the respondents. There are two main issues will be showed in accordance to the accessibility map producing process. The first one is map-scaling definition and the second is symbols definition or other description in the map.

Figure 8. Map correction process

The scaling and symbols uniformity used to draw the accessibility map for at least all villages in one district is very necessary to help the district staff to understand the accessibility condition in different areas at the same basic perspective. Without any uniformity, like applied development planning procedure in all villages, hence it is difficult to compare inter-areas circumstances to define the allocation of the appropriate project program in terms of equity. In the wider perspective, the uniformity map will make possible to do comparison and examine the rural accessibility condition in every district and province, moreover inter-different countries. The symbols utilized in composing the village accessibility map in Indonesia can be seen in Annexes.



Figure 9. Village accessibility map

3.2. PRIORITY IDENTIFICATION

3.2.1. T-2 TRAINING

The priority determination process of improving the accessibility is the estuary of forming and data compilation included indicator definition, indicator weight, and accessibility score calculation. To provide the identification priority process, the reform after completing field data collection, subsequently conducted data analysis and priority definition training, or in IRAP is classified as T-2 training. The objective of this training are: to validate, correct and/or up-to-date the information base; to analyze the primary data collected and to calculate indicators; and to train participants in the use of IRAP planning tools to identify priority areas.

Considering the subject weight have to be comprehended, hence the duration of the training is 2 days, with form of presentation includes speech, discussion and practice. The participant from each village is given an opportunity to do the calculation process with the bases on the data collected from sub-villages in their village. Every step is supervised intensively and the overcome problem has to be discussed completely to ensure that there are no mistakes. The subjects in this training are focused on 4 steps in areas definition that turn out to be the priority in the improving the accessibility, i.e. indicator value and indicator weight determination, accessibility score calculation and sub-village priority identification. This step is become the most important step in IRAP planning cycle.

3.2.2. INDICATOR VALUE

In the IRAP implementation in Indonesia in the period of 2003-2004, the indicator value is narrow down, i.e. in the range of 1 to 3. This range is different from that used in the period of 2001-2002, i.e. 1 to 7. The objective of this is to simplify the calculation process. The number of indicator is defined from result of the completed questionnaire, whilst the value defined by planner staffs at district level. Therefore, the indicator value will be uniform for all villages in one district. The example of indicator value for education sector is presented in the following Table 1.

Table 1. Hypothetical Indicator Values for Education Sector

Name of Sub-village	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5	Indicator 6
A	3	1	2	2	1	3
B	2	2	3	1	3	2
C	1	3	1	3	2	3

Description:

Indicator 1: Number of student (1 = < 50 students; 2 = 50 – 100 students; 3 = > 100 students)

Indicator 2: Number of teacher (1 = < 6 teachers; 2 = 6 – 12 teachers; 3 = > 12 teachers)

Indicator 3: How to get there (1 = private vehicle or walk < 1 km; 2 = public transportation or walk 1 – 2 km; 3 = walk > 2 km)

Indicator 4: Distance (1 = < 1 km; 2 = 1 – 2 km; 3 = > 2 km)

Indicator 5: Travel time (1 = < 15 minutes; 2 = 15 – 30 minutes; 3 = > 30 minutes)

Indicator 6: Travel cost (1 = < Rp 500; 2 = Rp 500 – Rp 1.000; 3 = > Rp 1.000)

3.2.3. INDICATOR WEIGHT

Not all indicators have the same important contribution in determination the accessibility conditions in villages. Hence, it should be decided the different weight of each indicator. Different from indicator value determination, the indicator weight determination in the period of 2003-2004 will not be unchanged compared to that in period of 2001-2002, i.e. in the range of 1 to 5

Table 2. Hipothetical Indicator Weight for Education Sector

Name of Sub-village	Stakeholder	Weight for Indicator 1	Weight for Indicator 2	Weight for Indicator 3	Weight for Indicator 4	Weight for Indicator 5	Weight for Indicator 6
A	1. Dusun Leader	2	3	1	5	4	5
	2. Religion Leader	3	2	3	4	4	3
	3. Youth Leader	5	4	5	2	3	4
	Average	3.33	3.00	3.00	3.67	3.67	4.00
B	1. Dusun Leader	4	5	2	3	5	3
	2. Religion Leader	4	3	4	5	4	5
	3. Youth Leader	5	3	5	3	3	5
	Average	4.33	3.67	3.67	3.67	4.00	4.33
C	1. Dusun Leader	3	2	3	5	3	4
	2. Religion Leader	2	5	3	3	4	3
	3. Youth Leader	5	3	4	2	2	5
	Average	3.33	3.33	3.33	3.33	3.00	4.00

Description:

Weight 5: Very important

Weight 4: Fairly important

Weight 3: Medium important

Weight 2: Little important

Weight 1: Not important

The important thing should be reminded that the weight for indicators has to be the same in one district. The aim of this is hence the accessibility problems can be compared each other. The example of inputting indicator weight for education sector with the assumption of three stakeholders as respondent in the survey at sub-village level can be seen in Table 2

3.2.4. ACCESSIBILITY SCORE

Theoretically it is known that the access has a contrary relationship with distance, time and cost.

$$Access = f(\text{distance, time, cost}) \dots\dots\dots (1)$$

The access problem is become more important while more member of inhabitants occur the impact. The accessibility score calculation is overcome with place in the indicator values and average indicator weights of each indicator into the following equation.

$$\sum_{I=1}^n \text{Indicator values} * \text{Average indicator weights} = \text{Sub - village Accessibility Score} \quad (2)$$

where I is indicator. In education sector value of n = 6.

According to the equation (2), the accessibility score for the education sector are as follows.

Table 3. Hypothetical Accessibility Scores for Education Sector

Name of Sub-village	Indicators (I)						Average Weights (AW)						Accessibility Score $\sum (I_i * AW_i)$
	I1	I2	I3	I4	I5	I6	AW1	AW2	AW3	AW4	AW5	AW6	
A	3	1	2	2	1	3	3.33	3.00	3.00	3.67	3.67	4.00	42.00
B	2	2	3	1	3	2	4.33	3.67	3.67	3.67	4.00	4.33	51.34
C	1	3	1	3	2	3	3.33	3.33	3.33	3.33	3.00	4.00	44.64

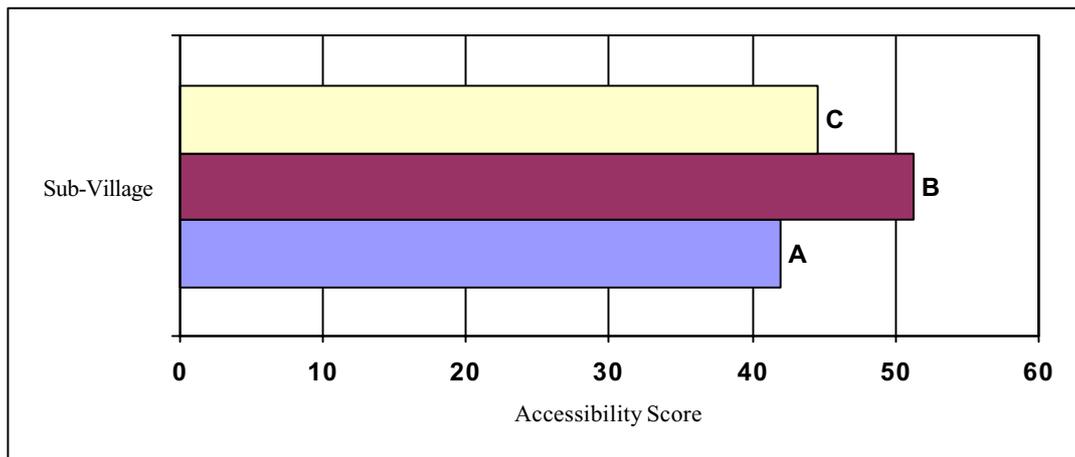


Figure 4. Hypothetical Accessibility Scores for Education Sector

3.2.5. PRIORITY RANK

The last step is determination of the priority rank of each sub-district in a village. The basic principal is the higher the accessibility score, the heavier the problem, hence require getting the priority to improve the accessibility. According to the calculation results presented in Table 3, it can be seen that sub-village ('dusun') B has the worst accessibility in terms of education, hence required to be prioritized.

Table 4. Hypothetical Priority Rank for Education Sector

Name of Sub-village	Accessibility Score	Priority
A	42.00	3
B	51.34	1
C	44.64	2

The above priority ranks need to be assumed as an initial identification that still has to be confirmed with the planning program and project conducted at the village. It is possible at the same time while conducting survey, the planning or project are already been planned, transport or non-transport, that can improve the accessibility problem in education sector in sub-village B, hence the priority rank can moves to Sub-village A or C.

4. CONCLUSIONS AND REMARKS

The implementation experience indicated that the IRAP application is expected, in general, can support the local development planning process, and especially for infrastructure planning in order to improve the accessibility in rural area in Indonesia. In the period of 2003-2004, the IRAP implementation also begins to involve the contribution of local government and private business funds. In addition to the main characteristics such as multi-sector, integrated and result an output fast, so then the simplicity, friendliness and the comprehension to the local circumstances are become the strong point that owned by the IRAP procedure in supporting the optimalisation of the development planning procedure recently.

In the period of 2001-2002, when the IRAP procedure was implemented in Indonesia as a pilot project, some modification have been conducted of which especially aimed to eliminate the overcome problems at the district level. The modifications were performed without leaving aside of the IRAP characteristics, that consisted of training, data collection, mapping, data base compilation, and priority area determination. The results of these modifications are expected becoming the standard instrument that would be implemented in the period of 2003-2004, whilst IRAP implementation is expected to cover the wider areas.

To optimize the training activity as basic assets of site activities, the training modules have been improved includes the addition of introduction of GPS application module. The improvement is also been performed in terms of materials and presentation technique in order to ease the subject absorption of the trainee.

The improvement in data collection process was conducted by modifying the questionnaire and adjusting in surveying, especially adjustment to the characteristic and inhabitant living pattern found in the project site. In the period of 2001-2002, the supervision was still carried out intensively by the IRAP project staff, however in the period of 2003-2004 is expected that this role will be conducted by the district development planning staffs.

The same approach is also performed in mapping accessibility. The substantial and necessity to discuss matters are scale standard and symbols definition in the accessibility mapping process, not only for village map but also for district.

In the priority area determination process, the simplification is conducted by tightening the range of the indicator score, hence making easier in accessibility score calculation process. The important subject that overcomes is be deficient in the comprehension level and commitment of the agencies and inhabitants involved in the development planning process at district level. Furthermore, the intensive supervision is required during and/or after the end of the project. Without any intensive supervision, it is believe that the IRAP

instruments can not be maximally adopted in supporting the development planning process regularly.

In the period of 2001-2002 consisted some activities in the IRAP standard procedure that had not been implemented wider and intensively in Indonesia, i.e. training and application of presentation techniques and project proposal arrangement. In the period of 2003-2004, the T-3 training and its implementation are expected will be carried out adequately. The implementation of these activity, in one side will be raised the IRAP planning cycle components that can be applicated, and the other side that more important is especially to improve the ability of village agencies and inhabitant in presenting the output to the decision maker and generally able to optimize the infrastructure development planning process in rural areas.

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Annex A

Instruction for Desa Mapping

Border Line

- | | |
|--------------------------|------------------|
| 1. Country border line | +++++ |
| 2. Province border line | -...-...-...-... |
| 3. Kabupaten border line | -...-...-...-... |
| 4. Kecamatan border line | -...-...-...-... |
| 5. Desa border line | ————— |
| 6. Dusun border line | ----- |

River, Lake, and Sea

- | | |
|----------|---|
| 1. River |  |
| 2. Lake |  |
| 3. Sea |  |

Location Central of Government

- | | |
|----------------------|---|
| 1. Province Capital | ▲ |
| 2. Kabupaten Capital | ● |
| 3. Kecamatan Capital | ● |
| 4. Desa Centre | ● |

Notes

1. Legend must be drawn/written in the map.
2. Country name, province, kabupaten, kecamatan, desa and dusun must be shown in the map in Indonesian language.
3. Adjust a border line and orientation.



INTEGRATED RURAL ACCESSIBILITY PLANNING (IRAP)

Dusun Level Survey

Name of Province	<input type="text"/>
Name of Kabupaten/Kota	<input type="text"/>
Name of Kecamatan	<input type="text"/>
Name of Desa/Kelurahan	<input type="text"/>
Name of Dusun	<input type="text"/>
Date of Data Collection	<input type="text"/>
Name of Data Collector	<input type="text"/>
Name of Desa/Kelurahan Leader	<input type="text"/>
Name of Dusun Leader	<input type="text"/>
Signature	<input type="text"/>
Date of Signature	<input type="text"/>



1. GENERAL CHARACTERISTICS

1.1. Population

1.1.1. Number of People

--

1.1.2. Number of Household

--

1.2. Livelihood Sources

Livelihood Sources	Number of Household
1.2.1. Farming	
1.2.2. Livestock	
1.2.3. Fishing	
1.2.4. Trading	
1.2.5. Civil Servant	
1.2.6. Others :	
1.2.7. Others :	
1.2.8. Others :	



2. MOBILITY

2.1. MAIN DESTINATION

	Main Destination		
	Center of Desa/Kelurahan	Capital of Kecamatan	Capital of Kabupaten
2.1. Road Quality*			
2.1.1. Good			
2.1.2. Good in one season			
2.1.3. Bad in all season			
2.2. How to get there			
2.3. Distance (km)			
2.4. Travel Time (minute)			
2.5. Travel Cost (Rp)			

*give mark (X) to the right column

2.2. PUBLIC TRANSPORTATION

	Type of Public Transportation Services		
	1	2	3
2.2.1. Number of household			
2.2.2. Frequency of using			
2.2.3. Destination			
2.2.4. Distance (km)			
2.2.5. Travel Time (minute)			
2.2.6. Travel Cost (Rp)			

2.3. PRIVATE TRANSPORTATION

(Number and type of vehicle that own by dusun people)

Type of vehicle	Number of household
2.3.1. Car	
2.3.2. Hand Tractor	
2.3.3. Motorcycle	
2.3.4. Bicycle	
2.3.5. Motor Boat	
2.3.6. Boat	
2.3.7. Others :	
2.3.8. Others :	



3. CLEAN WATER

3.1. Wet Season

	Main Source						
	PDAM	Well	River	Pond	Spring	Rain Water Collection	Others
3.1.1. Number of household							
3.1.2. Distance from main source (km)							
3.1.3. Travel time in collecting water (mnt)							

3.2. Dry Season

	Sumber air bersih						
	PDAM	Well	River	Pond	Spring	Rain Water Collection	Others
3.2.1. Number of household							
3.2.2. Distance from main source (km)							
3.2.3. Travel time in collecting water (mnt)							

4. ELECTRICITY

	Source of Electricity		
	PLN	Others :	Others :
4.1. Number of household			
4.2. Average service time per day (hour)			

5. EDUCATION

5.1. Is there any elementary school inside dusun ?

Give mark (x)

Yes

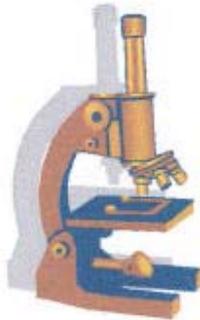
No

5.1.1. If Yes :

	Name of elementary school inside dusun		
	1	2	3
5.1.1.1. Number of student (person)			
5.1.1.2. Number of teacher (person)			
5.1.1.3. How to get there			
5.1.1.4. Distance (km)			
5.1.1.5. Travel time (minute)			
5.1.1.6. Travel cost (Rp)			

5.1.2. If Not, where do elementary school students go ?

	Name of elementary school outside dusun		
	1.	2.	3.
5.1.2.1. Number of student (person)			
5.1.2.2. Number of teacher (person)			
5.1.2.3. How to get there			
5.1.2.4. Distance (km)			
5.1.2.5. Travel time (minute)			
5.1.2.6. Travel cost (Rp)			



5.2. Is there any secondary school inside dusun ?

Give mark (x)

Yes

No

5.2.1. If Yes :

	Name of secondary school inside dusun		
	1.	2.	3.
5.2.1.1. Number of student (person)			
5.2.1.2. Number of teacher (person)			
5.2.1.3. How to get there			
5.2.1.4. Distance (km)			
5.2.1.5. Travel time (minute)			
5.2.1.6. Travel cost (Rp)			

5.2.2. If No, where do secondary school students go ?

	Name of secondary school outside dusun		
	1.	2.	3.
5.2.2.1. Number of student (person)			
5.2.2.2. Number of teacher (person)			
5.2.2.3. How to get there			
5.2.2.4. Distance (km)			
5.2.2.5. Travel time (minute)			
5.2.2.6. Travel cost (Rp)			



6. HEALTH CARE FACILITIES IN DUSUN

6.1. Are there health care facilities inside dusun ?

Give mark (x)

Yes

No



6.1.1. If Yes :

	Type of facilities							
	Posyandu	Polindes	Puskesmas	Drugstore	Pharmacy	Clinic	Hospital	Others
6.1.1.1. Number of facilities (unit)								
6.1.1.2. Total of health staff (person)								
6.1.1.3. Number of visit in a month								
6.1.1.4. How to get there								
6.1.1.5. Distance (km)								
6.1.1.6. Travel time (minute)								
6.1.1.7. Travel cost (Rp)								

6.1.2. If No, where do the people go to get health care?

	Type of facilities							
	Posyandu	Polindes	Puskesmas	Drugstore	Pharmacy	Clinic	Hospital	Others
6.1.2.1. Number of facilities (unit)								
6.1.2.2. Total of health care (person)								
6.1.2.3. Number of visit in a month								
6.1.2.4. How to get there								
6.1.2.5. Distance (km)								
6.1.2.6. Travel time (minute)								
6.1.2.7. Travel cost (Rp)								

7. AGRICULTURE

	Name of product			
	1	2	3	4
7.1. Number of household				
7.2. Percentage sold (%)				
7.3. Where do they sell it				
7.4. Road quality to the market				
7.4.1. Good				
7.4.2. Good in one season				
7.4.3. Bad in all season				
7.5. Distance to the market (km)				
7.6. How the product be transported				
7.7. Travel time to the market (minute)				
7.8. Travel cost to the market (Rp)				

* Give mark (x) in the right column

7.9. Type of Crop Facilities

	Type of crop facilities		
	Rice mill	Others:	Others:
7.9.1. Number of crop facilities			
7.9.2. Capacity (kg/day)			

7.10. If there is no crop facilities inside dusun, where do people go ?



8. LIVESTOCK PRODUCTION

	Type of livestock production		
	1	2	3
8.1. Number of household			
8.2. Percentage of sold (%)			
8.3. Where do they sell it?			
8.4. Road quality to the market*			
8.4.1. Good			
8.4.2. Good in one season			
8.4.3. Bad in all season			
8.5. Distance to the market (km)			
8.6. How the product be transported			
8.7. Travel time to the market (minute)			
8.8. Travel cost to the market (Rp)			



* Give mark (x) to the right column

9. FISHERY PRODUCTION

	Type of fishery production		
	1	2	3
9.1. Number of household			
9.2. Percentage of sold (%)			
9.3. Where do they sell it?			
9.4. Road quality to the market*			
9.4.1. Good			
9.4.2. Good in one season			
9.4.3. Bad in all season			
9.5. Distance to the market (km)			
9.6. How the product be transported			
9.7. Travel time to the market (minute)			
9.8. Travel cost to the market (Rp)			

* Give mark (x) to the right column

10. SMALL INDUSTRIES

	Type of small industry product		
	1	2	3
10.1. Number of household			
10.2. Percentage of sold (%)			
10.3. Where do they sell it?			
10.4. Road quality to the market*			
10.4.1. Good			
10.4.2. Good in one season			
10.4.3. Bad in all season			
10.5. Distance to the market (km)			
10.6. How the product be transported			
10.7. Travel time to the market (minute)			
10.8. Travel cost to the market (Rp)			

* Give mark (x) to the right column

11. MARKETS

	Market Name		
	1.	2.	3.
11.1. Where do people go?			
11.2. Road quality to the market*			
11.2.1. Good			
11.2.2. Good in one season			
11.2.3. Bad in all season			
11.3. How do they go there?			
11.4. Distance (km)			
11.5. Travel time (minute)			
11.6. Travel cost (Rp)			

* Give mark (x) to the right column

12. PROBLEMS

12.1. ACCESSIBILITY PROBLEMS

Sector	No problem	Small problem	Big problem	If big problem, why?
12.1.1. Mobility				
12.1.2. Clean Water				
12.1.3. Electricity				
12.1.4. Education				
12.1.5. Health services				
12.1.6. Agriculture				
12.1.7. Livestock production				
12.1.8. Fishery production				
12.1.9. Small Industry				
12.1.10. Market				
12.1.11. Transportation				
12.1.12. Others :				
1.				
2.				

12.2. NON-ACCESSIBILITY PROBLEMS

Sector	No problem	Small problem	Big problem	If big problem, why?
12.2.1. Mobility				
12.2.2. Clean Water				
12.2.3. Electricity				
12.2.4. Education				
12.2.5. Health services				
12.2.6. Agriculture				
12.2.7. Livestock production				
12.2.8. Fishery production				
12.2.9. Small Industry				
12.2.10. Market				
12.2.11. Transportation				
12.2.12. Others :				
1.				
2.				

13. PRIORITY PROJECT

Priority	Man	Woman
1		
2		
3		



**LESSON LEARNED OF IRAP IMPLEMENTATION
IN INDONESIA:
Data Collection, Mapping, and Priority Identification**



**Gadjah Mada
University**



**Integrated Rural
Accessibility Planning**



ILO ASIST-AP

By :

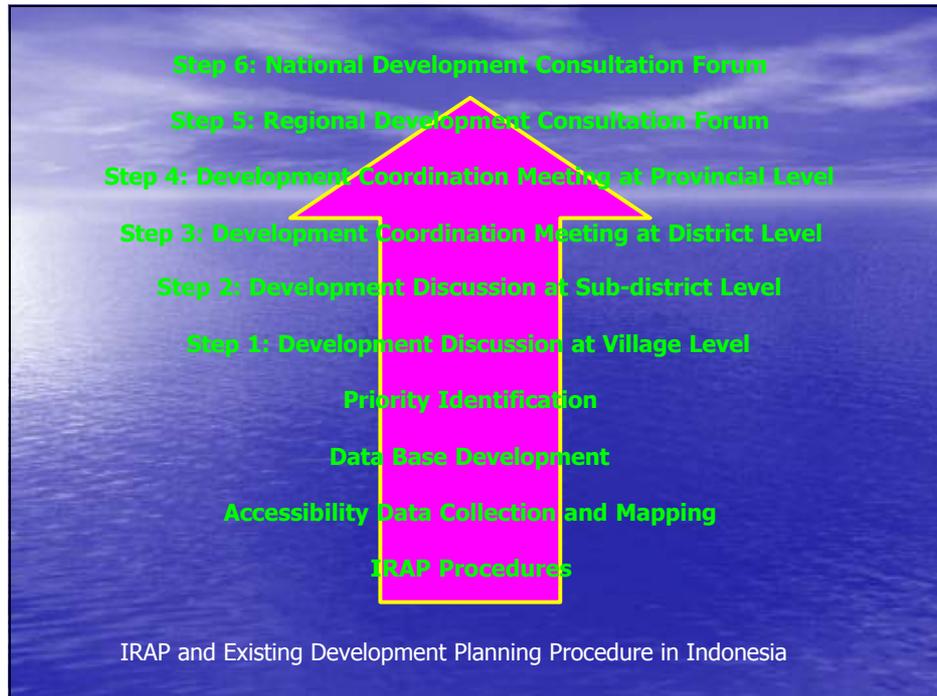
Dr. Roberto Akyuwen

Dr. Latief Budi Suparma

Ir. Dony Soelistiyono

IRAP IMPLEMENTATION AREAS IN INDONESIA

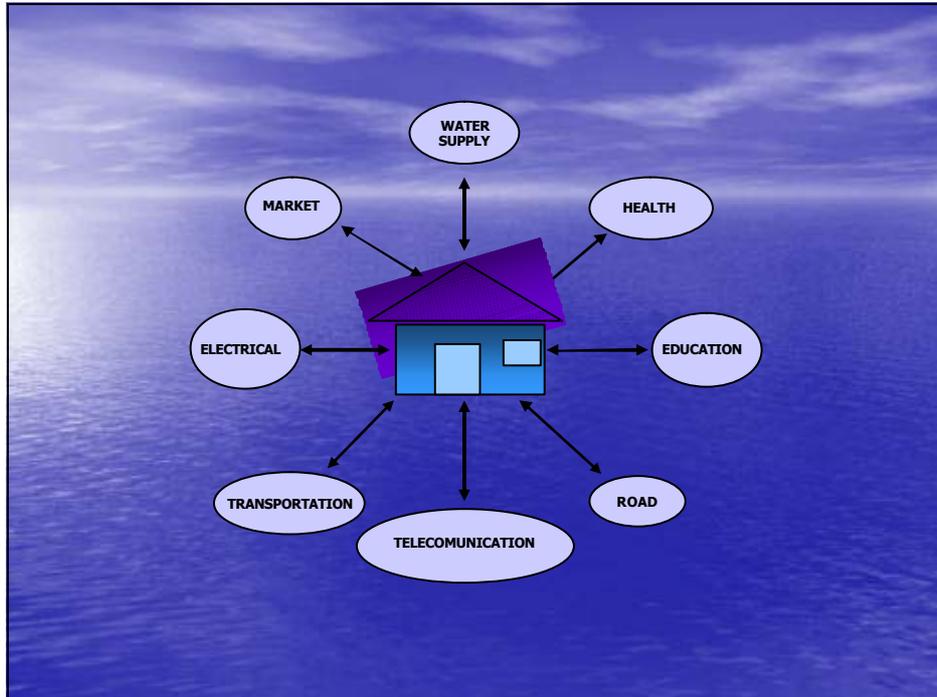




JOINT COOPERATION IN IRAP IMPLEMENTATION

1. UGM/ILO ASIST-AP
2. LOCAL GOVERNMENT (Kabupaten)
3. MULTI-NATIONAL COMPANY (Community Development Fund)

Mainstreaming IRAP procedure in both local and national policy?



ACCESSIBILITY DATA COLLECTION AND MAPPING

T-1 TRAINING

In addition to the T-1 training subject matter, the introduction of GPS (Global Positioning System) application is also presented especially for the development planning staffs at district level.

DATA COLLECTION

To ensure that data collection and mapping process is good taking place at local level, in the terminology of the pilot project period of 2001-2002, the data collector are consisted of the combination from three elements:

- Staff and village inhabitant that involved in the planning process
- The district development planning staffs
- The undergraduate student recruited as temporary staff of IRAP project

SURVEY INSTRUMENT

According to the scope areas, the survey instrument used in the data collection process is questionnaire for sub-village level. The questionnaire is consisted of 10 pages. The first page includes the survey area and respondent identity. Pages 2 to 10 consisted of 13 parts, i.e. general characteristics, mobility, private transportation, clean water, electricity, education, health care facilities, agriculture, livestock production, fishery production, small industries, markets, problems, and priority projects.

In the priority project section, there is a new substance that is the gender consideration. Appropriated separate column for male and female to define the projects priority in accordance to each point of view. Although in practice it consume an extra time, but this cannot be avoided when required the valid information and development planning. The fact indicated that the woman has a significant consideration in the rural development; hence they have to be involved in the priority determination to overcome the development problems, especially in improving the accessibility.

ACCESSIBILITY MAPPING

There are two main issues will be showed in accordance to the accessibility map producing process:

- Map-scaling definition
- Symbols and other description



PRIORITY IDENTIFICATION

T-2 TRAINING

Considering the subject weight have to be comprehended, hence the duration of this training is 2 days, with form of presentation includes speech, discussion and practice. The participants from each village is given an opportunity to do the calculation process with the bases on the data collected from sub-villages in their village. Every step is supervised intensively and the overcome problem has to be discussed completely to ensure that there are no mistakes. The subjects in this training are focused on 4 steps in areas definition that turn out to be the priority in the improving the accessibility, i.e. indicator value definition, indicator weight definition, accessibility score calculation and sub-village priority identification.

INDICATOR VALUE

Name of Sub-village	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5	Indicator 6
A	3	1	2	2	1	3
B	2	2	3	1	3	2
C	1	3	1	3	2	3

Description:

Indicator 1: Number of student (1 = < 50 students; 2 = 50–100 students; 3 = > 100 students)

Indicator 2: Number of teacher (1 = < 6 teachers; 2 = 6–12 teachers; 3 = > 12 teachers)

Indicator 3: How to get there (1 = private vehicle or walk < 1 km; 2 = public transportation or walk 1–2 km; 3 = walk > 2 km)

Indicator 4: Distance (1 = < 1 km; 2 = 1–2 km; 3 = > 2 km)

Indicator 5: Travel time (1 = < 15 minutes; 2 = 15–30 minutes; 3 = > 30 minutes)

Indicator 6: Travel cost (1 = < Rp 500; 2 = Rp 500 – Rp 1.000; 3 = > Rp 1.000)

INDICATOR WEIGHT

Name of Sub-village	Stakeholder	Weight for Indicator 1	Weight for Indicator 2	Weight for Indicator 3	Weight for Indicator 4	Weight for Indicator 5	Weight for Indicator 6
A	1. Dusun Leader	2	3	1	5	4	5
	2. Religion Leader	3	2	3	4	4	3
	3. Youth Leader	5	4	5	2	3	4
	Average	3.33	3.00	3.00	3.67	3.67	4.00
B	1. Dusun Leader	4	5	2	3	5	3
	2. Religion Leader	4	3	4	5	4	5
	3. Youth Leader	5	3	5	3	3	5
	Average	4.33	3.67	3.67	3.67	4.00	4.33
C	1. Dusun Leader	3	2	3	5	3	4
	2. Religion Leader	2	5	3	3	4	3
	3. Youth Leader	5	3	4	2	2	5
	Average	3.33	3.33	3.33	3.33	3.00	4.00

Description:

Weight 5: Very important

Weight 4: Fairly important

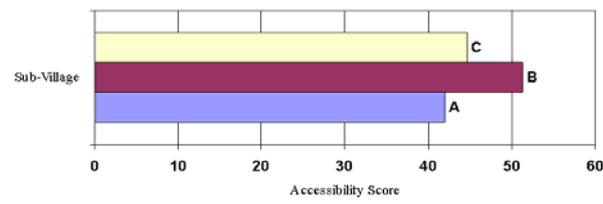
Weight 3: Medium important

Weight 2: Little important

Weight 1: Not important

ACCESSIBILITY SCORE

Name of Sub-village	Indicators (I)						Average Weights (A.W)						Accessibility Score $\sum (I_i * A.W_i)$
	I1	I2	I3	I4	I5	I6	AW1	AW2	AW3	AW4	AW5	AW6	
A	3	1	2	2	1	3	3.33	3.00	3.00	3.67	3.67	4.00	42.00
B	2	2	3	1	3	2	4.33	3.67	3.67	3.67	4.00	4.33	51.34
C	1	3	1	3	2	3	3.33	3.33	3.33	3.33	3.00	4.00	44.64



PRIORITY RANK

Name of Sub-village	Accessibility Score	Priority
A	42.00	3
B	51.34	1
C	44.64	2

CONCLUSIONS AND REMARKS

- IRAP application is expected can support the local infrastructure development planning process in order to improve the accessibility in rural area in Indonesia. The implementation also begins to involve the contribution of local government and private business funds. The simplicity, user-friendliness and the comprehension to the local circumstances are become the strong point in supporting the optimization of the development planning procedure recently.
- Some modification have been conducted of which especially aimed to eliminate the overcome problems at the local level. The results of these modifications are expected becoming the standard instrument that would be implemented in the period of 2003-2004, whilst IRAP implementation is expected to cover the wider areas.
- The training modules have been improved includes the addition of introduction of GPS application module. The improvement is also been performed in terms of materials and presentation technique in order to ease the subject absorption.

- The improvement in data collection process was conducted by modifying the questionnaire and adjusting in surveying, especially adjustment to the characteristic and inhabitant living pattern found in the project site.
- In accessibility mapping, the substantial and necessity to discuss matters are scale standard and symbols definition in the accessibility mapping process, not only for village map but also for district.
- In the priority area determination process, the simplification is conducted by lightening the range of the indicator score, hence making easier in accessibility score calculation process.
- In the period of 2001-2002 some activities had not been implemented wider and intensively in Indonesia, i.e. training and application of presentation techniques and project proposal arrangement. In the period of 2003-2004, the T-3 training and its implementation are expected will be carried out adequately.

ANNEX 5

India

INTEGRATED RURAL ACCESSIBILITY PLANNING

Developing IRAP Procedures for India



STATUS REPORT SEPTEMBER 2002

Chris Donnges

International Labour Organisation

Asia and the Pacific



ASIST-AP

Advisory Support, Information Services and Training

Background

Integrated Rural Accessibility Planning or "IRAP" is a local level planning tool for identifying investment priorities for improving access in rural areas. The tool considers the real access needs of the rural communities and identifies and prioritizes interventions aiming at either improving the transport system (roads, bridges, tracks and transport services) or the distribution of facilities providing certain services (water supplies, schools, health centers and markets). The IRAP procedures generally support decentralization and participation.

The IRAP procedures have been successfully introduced in a number of Asian countries. Activities in India started during the first half of 2002 to demonstrate the potential of the planning procedures and to adapt the generic techniques for application in India.

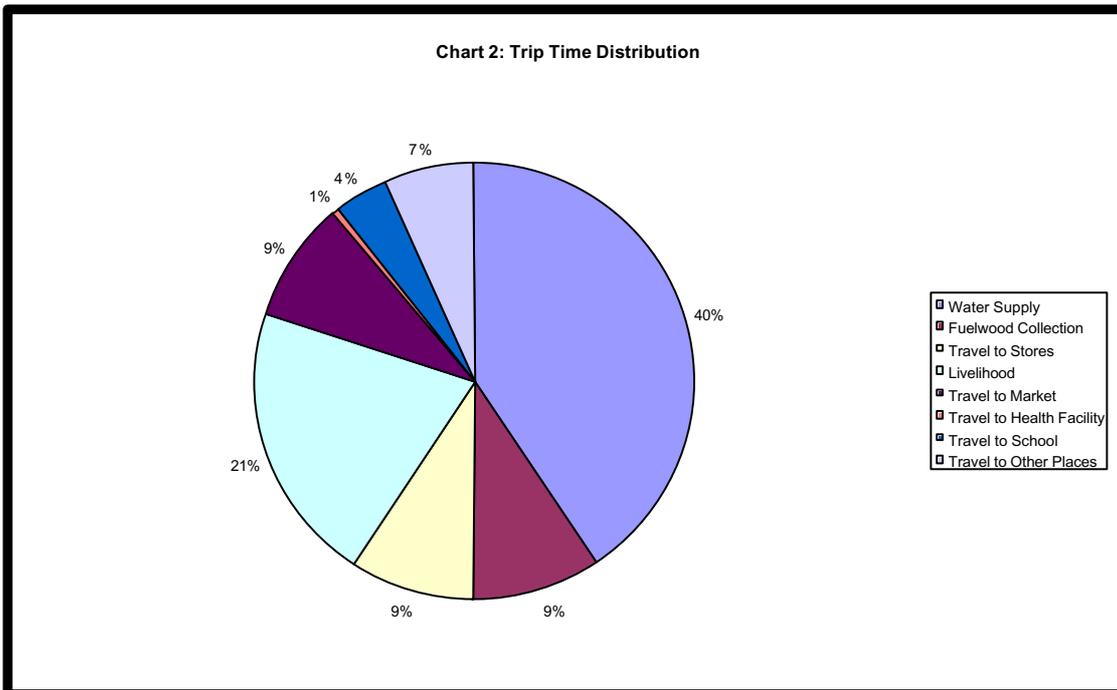
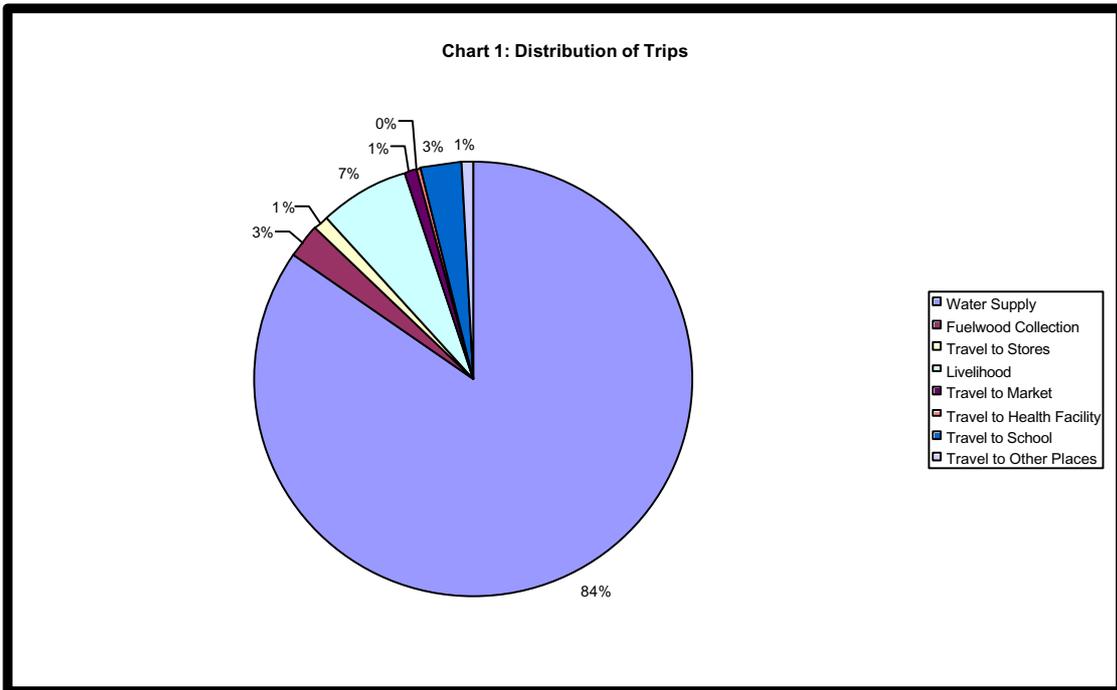
A questionnaire was developed, village level data was collected and maps were prepared in mid 2002. A first review workshop was organized in Delhi in late August 2002. The workshop decided that the procedures would be developed for use at the Gram Panchayat level. It was agreed that the procedures would initially focus on 4 sectors: transport, water supply, primary health care services and primary education.

In summary, this report analyzes transport and access characteristics in selected villages in Orissa and Rajasthan and suggests further directions for developing the IRAP procedures for India. It proposes to develop procedures for use at both the Block and Gram Panchayat Level and, in line with the generic IRAP approach, suggests a three-phase application: data collection and mapping, analysis and identification of village priorities, project identification and design.

Chapter 1: Transport and Travel Characteristics

The Orissa Forum for Rural Transport and Development (ORFRTD) recently conducted an in-depth study on the access needs of tribal communities in rather isolated areas. Although it is accepted that the communities surveyed are not representative for the State as a whole, the results of this study provide an inside on travel characteristics and travel patterns in a particular area.

The following two diagrams identify some main travel characteristics



The average household in the survey area makes about 5000 trips per annum. Chart 1 shows that on average 84% of the trips registered by the survey were made for water collection. Trips associated with livelihood activities account for 7% of the total trips. Trips for attending school and collecting fuelwood each account for about 3% of annual household trips.

An examination of time spent travelling gives a somewhat different picture. Chart 2 shows that water collection is the most time consuming activity and accounts for 40% of an average household's travel time. Livelihood travel however also accounts for a substantial part of total travel time (21%). Travelling for fuelwood collection, travel to stores and travel to markets each account for about 9% of household travel time.

The accessibility data collected in selected villages in Orissa and Rajasthan shows that people travel within the villages mostly for water collection, firewood collection, livelihood purposes, education, to visit shops, to make telephone calls and for religious purposes. People travel outside their village to nearby towns to visit markets, buy agricultural inputs, for health care, for higher education, to buy gas and to visit government agencies, post offices and banks.

The following 2 chapters summarize some of the accessibility data for water supply, primary education, primary health care, market access, road access and transport services for selected Gram Panchayats in Rajasthan and Orissa. The development of the IRAP procedures will initially concentrate on 4 sectors: water supply, primary education, primary health care and transport. The main responsibility for providing these services is primarily with Government.

Chapter 2: General Characteristics Orissa

Gram Pachayat¹ Badapalli in Orissa State, India, consists of 17 villages with a total population of 948 households. The average village size is 56 households (see table 1).

Table 1: General Characteristics

total population	4,554
total number of households	948
average household size	4.8
average number of households per village	56
biggest village (households)	100
Smallest village (households)	6

¹ A Gram Pachayat is the lowest level of local Government in India under its three-tier system (District, Block (equivalent to a sub-district) and Gram Pachayat).

Access to Water

Access to drinking water is considered a big problem in 9 villages (53%). The main problems are identified as limited numbers, arrangements and quality. Access or distance is not perceived as problematic. Improving access to water is a first priority in 2 villages, a second priority in 3 villages and a third priority in a further 3 villages.

The following table summarizes some of the data.

Table 2: Water Supply Characteristics

Number of traditional sources	57
Average number of months traditional sources are being used	11
Number of improved sources (working)	14
Households per improved source	68
Average number of months improved sources are being used	11
Average round trip water collection time traditional source - dry season	14 minutes
Average round trip water collection time improved source - dry season	12 minutes
Average round trip water collection time traditional source - wet season	11 minutes
Average round trip water collection time traditional source - wet season	11 minutes
Average number of trips to traditional source (per household)	9
Average number of trips to improved source (per household)	9
Number of villages with only traditional source	7
Number of villages with only improved source	1
Number of villages with both sources	9

According to table 2, most households use traditional and improved sources. They make an average of 9 trips a day, which takes about 11 to 14 minutes per trip depending on the season. These figures indicate that an average household spends just below 2 hours per day fetching water. This is not perceived as a problem.

Looking at the individual village data it is suggested that the following villages are identified as priorities:

Table 3: Village Priorities

Village	Number of Households	Number of Improved Sources	Access to Water is Identified as a Problem	Improving Access to Water is Identified as a Priority Project
Chhakasingi	95	0	Yes	No
Badapali	84	0	Yes	No
Sanabola	56	0	Yes	Yes
Sorisa Patta Banjar	36	0	Yes	Yes
Gunduripali	100	1	Yes	Yes

The following criteria² are used for identifying the priority villages:

- All villages with 30 households or more should have at least one improved source of water within the village.
- The villagers should perceive access to drinking water as either a main problem, a priority for improvement or both.
- The target is to have one improved source per 50 households.

Access to Education

Physical access to education is considered a big problem in 9 villages (53%). The main access problems identified are road condition, distance and water-crossings. Improving (physical) access to education however is not amongst the top priorities.

The following table summarizes some of the data.

² These criteria are used as an example only and may be changed. The identification of criteria should be in line with national or local standards and targets and should be defined in a participatory manner.

Table 4: Access and Education Characteristics

Average travel time to a primary school (minutes)	23
Average travel distance to a primary school (kilometers)	1.0
Average travel time to an intermediate school (minutes)	58
Average travel distance to an intermediate school (kilometers)	4.0
Average travel time to a high school (minutes)	53
Average travel distance to a high school (kilometers)	3.2
Average number of school age children per household	0.8
Main mode of transportation	walk
Road access is problematic	16 villages
Distance is problematic	15 villages
Water crossings are problematic	12 villages

Looking at the individual village data it is suggested that the following villages are identified as priorities for improving access to intermediate education (ME levels):

Table 5: Village Priorities

Village	Number of Households	Travel time to ME school	Access to Education is Identified as a Problem	Improving Access to Education is Identified as a Priority Project
Chhakasingi	95	120	yes	yes
Badabola	72	120	yes	no
Kamarsingi	50	90	yes	no

The following criteria³ are use for identifying the priority villages:

- All villages with 30 households or more should be within 60 minutes travel of a UP and ME school
- The villagers should perceive access to education as either a main problem, a priority for improvement or both.

Access to Health Care

Physical access to health care is considered a big problem in all 17 villages (100%). In all villages these problems are associated with distance and transportation. Improving (physical) access to education however is a top priority

³ These criteria are used as an example only and may be changed. The identification of criteria should be in line with national or local standards and targets and should be defined in a participatory manner.

in 8 villages, a secondary priority in 5 villages and a tertiary priority in a further 3 villages.

The following table summarizes some of the data.

Table 6: Access and Health Characteristics

Average travel time to the nearest health clinic	182 minutes
Main mode of transportation	walk, bicycle
Average distance to Public Health Center	16 kilometers
Average distance to Private Health Center	6 kilometers

Access to public health services is poor all over the Gram Panchayat. Public health centers should be improved or constructed and staffed in order to improve the situation. Health centers should be established in strategically central villages with a relatively large population in order to minimize travel times and distances across the Gram Panchayat. A mapping exercise is needed to identify these strategic villages.

Access to Markets

Access to markets is considered a big problem in 9 villages (53%) and a problem in the remaining 8 villages (47%). The main problems are related to distance and transportation.

The following table summarizes some of the data.

Table 7: Access to Markets

Average travel time to primary markets	22 minutes
Average number of monthly visits to primary markets	16
Average travel time to tertiary markets	199 minutes
Average number of monthly visits to tertiary markets	3

Market access depends on the extent and condition of the transport system which is discussed below.

Road Access

Access to the road network is considered a big problem in all villages (100%). The main problems are related to the quality of the existing access roads. Improving road access is a first priority in 7 villages, a second priority in 5 villages and a third priority in a further 4 villages.

The following table summarizes some of the data.

Table 8: Road Access

Average distance railway station	25 km
Average travel time railway station	4.3 hours
Average travel costs railway station	18 Rs
Average distance to all year round road network	6.3 km
Average time to all year round road network	1.5 hours

Transport Services

Access to transport is considered problematic in all villages. The following table summarizes some of the data.

Table 9: Access to Transport Services

Villages with bicycles	16 (94%)
Total number of bicycles	163
Households per bicycle	5.8
Villages with other transport	8 (47%)
Villages with cart	5
Villages with two wheeler	3
Villages with auto rickshaw	1
Villages with commercial vehicle	1

CONCLUSION ORISSA

1. Access to sufficient, all year round, drinking water is inadequate. Additional tube wells need to be constructed. The State should set a target like "x families per tube well" and start constructing tube wells in both villages without any improved water source and villages that do not meet the target.
2. Improving access to primary schools offering grades 1-5 has a lower priority compared to improving access to intermediate schools offering grades 6-8. Again, the State should set a target like "all students should be within x minutes travel of a primary/intermediate school". Investments need to be made in both buildings and additional teaching staff and the transport system.

3. Access to health care is generally poor. Health centers need to be established and staffed in central locations and strategic roads connecting the villages to the strategic location need to be improved.
4. The quality of the road network is poor. Improving the road network will improve access to health services, markets and nearby towns. The impact of road improvements however remains to be seen as vehicle ownership is limited to bicycles and transport services are almost completely lacking.
5. In summary, the main priorities of the Gram Panchayat seem to include the improvement and maintainance of its internal road network, the establishment and staffing of a strategic located health center and the construction of additional tube wells.

Chapter 3: General Characteristics Rajasthan

The data used in this analysis was collected in the 13 villages making up 3 Gram Pachayats⁴ in Surajgarh Block, Rajasthan State, India. The sample villages have a total population of 3,200 households. The average village size is 56 households (see table 1).

Table 10: General Characteristics

total population	21,100
total number of households	3,200
average household size	6,6
average number of households per village	246
biggest village (households)	500
smallest village (households)	60

Access to Water

Access to drinking water is considered a problem in 6 villages (46%). Men perceive improving access to drinking water as a first priority in 3 villages, a second priority in 2 villages and a third priority in 2 more villages. Women perceive improving access to drinking water as a first priority in 5 villages and a third priority in 2 more villages.

The following table summarizes some of the data.

⁴ A Gram Pachayat is the lowest level of local Government in India under its three-tier system (District, Block (equivalent to a sub-district) and Gram Pachayat).

Table 11: Water Supply Characteristics

Average round trip water collection time improved source	13 minutes
Average number of trips to traditional source (per household)	14
Number of villages with only traditional source	0
Number of villages with only improved source	13
Number of villages with both sources	0

According to table 2, all households use improved sources. They make an average of 13 trips a day, which takes about 14 minutes per trip. These figures indicate that an average household spends about 3 hours per day fetching water. This is perceived as a problem in 6 villages.

Looking at the individual village data it is suggested that the following villages are identified as priorities:

Table 12: Village Priorities

Village	Number of Households	Accessibility Indicator (Households* Collection Time * Frequency)	Access to Water is Identified as a Problem	Improving Access to Water is Identified as a Priority Project
Bhagina	475	213,750	Yes	Yes
Bhisanpura	180	81,000	No	Yes
Bangothadi	500	75,000	Yes	Yes
Netrampura	120	72,000	Yes	Yes
Jakhod	700	70,000	No	Yes

The following criteria⁵ are use for identifying the priority villages:

- Villages are ranked according an Accessibility Indicator (A.I.). The A.I. is calculated as follows: Number of Households in the Village (times) Water Collection Time (times) Frequency. The higher the A.I. the more time is spent on collecting water for a village as a whole.
- The villagers should perceive access to drinking water as either a main problem, a priority for improvement or both.

⁵ These criteria are used as an example only and may be changed. The identification of criteria should be in line with national or local standards and targets and should be defined in a participatory manner.

Access to Education

Access to education is considered a big problem in 8 villages (62%). The main access problems identified are old buildings and a lack of teachers. Men perceive improving access to education as a first priority in 2 villages, a second priority in 2 villages and a third priority in 2 more villages. Women perceive improving access to education as a first priority in 2 villages, a second priority in 4 villages and a third priority in 2 more villages.

The following table summarizes some of the data.

Table 13: Access and Education Characteristics

Villages with school with grade 1-5	All (13)
Villages with school with grade 6,7,8	2
Villages with high school	3
Average travel time to a primary school (1-8) outside village	39 minutes
Average travel distance to a primary school (kilometers)	7
Average number of school age (grade 1-8) children per household	0.5
Main mode of transportation	(school)bus/walk
Student/teacher ration	47

A mapping exercise is needed to identify priorities.

Access to Health Care

Physical access to health care is considered a big problem in all 12 villages (92%). In all villages these problems are associated with lack of veterinarians (no human health care!), facilities and health services. Men perceive improving access to health care as a first priority in 3 villages, a second priority in 2 villages and a third priority in 3 more villages. Women perceive improving access to health care as a first priority in 2 villages, a second priority in 3 villages and a third priority in 3 more villages.

The following table summarizes some of the data.

Table 14: Access and Health Characteristics

Average travel time to the nearest health clinic	35 minutes
Average distance to a health center	8 kilometers
Main mode of transportation	Jeep, bus

Health centers should be established in strategically central villages with a relatively large population in order to minimize travel times and distances across the Gram Panchayat. A mapping exercise is needed to identify these strategic villages.

Access to Markets

Access to markets is considered a problem in 2 villages (15%).

The following table summarizes some of the data.

Table 15: Access to Markets

Average travel time to primary market	114 minutes
Average travel distance to primary market	11 km
Average mode of travel to primary market	tractor, camel cart
Average travel time to other markets	68 minutes
Average number of monthly visits to tertiary markets	9
Average mode of travel to other market	tractor, camel cart

Market access depends on the extent and condition of the transport system which is discussed below.

Road Access

Access to the road network is considered a problem in 10 villages (77%). The main problems are related to the dusty and muddy sand roads. Men perceive improving road access as a first priority in 1 village, a second priority in 5 villages and a third priority in 1 more village. Women perceive improving road access as a second priority in 3 villages and a third priority in 2 more villages.

The population density is 88 people per kilometer of road. The following table summarizes some of the data.

Table 16: Road Access (km)

	Total Roads	Earth Roads	Gravel Roads	Black Top Roads	Concrete Roads
Total	239	202	4	30	3
Good Condition	77	47	0	27	3
Satisfactory Condition	69	66	0	3	0
Poor Condition	93	89	4	0	0
Without Transport Services	117	110	0	7	0
Camel cart Services	59	52	4	0	3
Jeep Services	55	41	4	7	3
Bus Services	51	35	0	16	0

Transport Services

Access to transport is considered problematic in 7 villages (54%). The following table summarizes some of the data.

Table 17: Access to Transport Services

	Number of Villages	Total Vehicles	Household / Vehicle Ratio
Bicycle	all	124	26
Camel cart	all	162	20
Two wheeler	12 out of 13	73	44
Jeep or car	9 out of 13	47	68
Others	9 out of 13	30	107

CONCLUSION RAJASTAN

1. Access to quality, all year round, drinking water needs to be improved. All villages have improved sources however access to drinking water is perceived

as a main problem. The State should set certain targets and identify priority villages for improving the water supply.

2. Access to primary and intermediate education seems to be adequate although buildings may have to be repaired and additional teachers need to be assigned.
3. Access to health services needs some improvement. A strategically located and staffed health center could reduce travel time and improve access across the gram Panchayats.
4. The road network needs improvement as half of the earth roads (85% of the total network) are in poor condition. Transport services are available in all villages and improving the road network is likely to have a substantial effect in terms of improving accessibility.
5. In summary, it seems that the investment priorities to improve access in the Gram Panchayat are in the road sector and water supply sector.

Chapter 4: Developing IRAP Procedures

It was agreed in August 2002 that the development of IRAP tools would focus on the Gram Panchayat level. It is hereby proposed to develop a two level approach. IRAP tools could be used at Block level to guide investments across sectors and Gram Panchayats. IRAP tools could be used at Gram Panchayat level to decide what exactly needs to be done in what particular village.

Aggregation of IRAP data should enable the planner at **Block level** to identify Gram Panchayats and particular (sub-)sectors that deserve priority in terms of investment allocation.

The following example could clarify this:

A hypothetical Block consists of 6 Gram Panchayats. Data has been collected on Water, Road Access and Education. The following table summarizes some characteristics:

Table 18: Example

	Household per Improved Water Source	Average Distance to Schools (grades 1-8)	Percentage of Households in Villages with All Year Round Road Access
GP 1	89	30 minutes	0%
GP 2	145	25minutes	10%
GP 3	245	12 minutes	0%
GP 4	156	21 minutes	100%
GP 5	55	8 minutes	25%
GP 6	198	45 minutes	30%
Block Average	147	22 minutes	12%
District Target	50	30 minutes	50%

At a first glance one would say that the water and road sector deserve priority over the education sector. GP 3 is a likely initial priority for both investments in the water sector and in the road sector while GP 1 is a priority for investments in the road sector.

IRAP tools need to be developed for use at **Gram Panchayat level** to identify village priorities for improving access within particular sectors and to identify interventions (projects) to effectively improve access. The prioritization techniques discussed during the meeting in August 2002 need to be further worked out.

It is also suggested to initially concentrate on the 4 agreed sectors: water education, health and transport as the larger part of the local investment budget is allocated to these sectors.

The proposed IRAP process would consist of 3 phases: information collection (T1), analysis and prioritization (T2) and project identification (T3). The following table summarizes the different steps

Table 19: The Proposed IRAP Process

	Block Level	Gram Panchayat Level
Information Collection (T1)	<ul style="list-style-type: none"> ➤ Preparation of Block Map 	<ul style="list-style-type: none"> ➤ Collection of Village Data ➤ Preparation of GP Maps ➤ Inventory of GP Road Network
Data Analysis and Prioritization (T2)	<ul style="list-style-type: none"> ➤ Identification of Sector Priorities ➤ Identification of GP Priorities 	<ul style="list-style-type: none"> ➤ Identification of Village Priorities
Project Identification (T3)		<ul style="list-style-type: none"> ➤ Identification of Projects and other Interventions

It is proposed to develop one IRAP manual with two subsets of guidelines for use at Block and Gram Panchayat level. These guidelines should be simple and straightforward. The main text of the manual should be kept short probably not exceeding 20 pages with examples, illustrations, graphics and photos. The different IRAP tools such as the questionnaire, mapping procedures, road inventory, prioritization procedures and project identification procedures could be added as Annexes. The guidelines need to be translated in Hindi and/or the local languages. Up until now the approach followed in Rajasthan and Orissa differs. It is suggested to amalgamate the different approaches and develop one manual that can be used all over India.

**Developing IRAP in India: A
Tool for the PRIs in
Decentralized Planning for
Rural Infrastructure
Development**

T 1 : Data Collection & Mapping

P.K. Pattanaik

Panchayati Raj Institutions
(PRI) System & Decentralized
Planning in India

Indian Constitution on PRIs

* Article 40 (Directive Principle)

“The State shall take steps to organize Village Panchayats & endow with such powers and authority as may be necessary to enable them to function as units of self-government”

* 73rd Constitutional Amendment Act, 1992 on Panchayati Raj

has enabled State Governments to provide necessary powers and functions to the PRIs to:

1. Function as institutions of local self-government
2. Plan and implement schemes for economic development and social justice including the 29 subjects listed in the 11th Schedule of the Constitution.

List of 29 Subjects under the 11th Schedule

- Agriculture, including agricultural extension
- Land improvement, implementation of land reforms, land consolidation and soil conservation
- Minor irrigation, water management and watershed development
- Animal husbandry, dairying and poultry
- Fisheries
- Social forestry and farm forestry
- Minor forest produce
- Small scale industries, including food processing industries
- Khadi, village and cottage industries
- Rural housing
- Drinking water
- Fuel and fodder
- Roads, culverts, bridges, ferries, waterways and other means of communication
- Rural electrification, including distribution of electricity

- Non-conventional energy sources
- Poverty alleviation programme
- Education, including primary and secondary schools
- Technical training and vocational education
- Adult and non-formal education
- Libraries
- Cultural activities
- Markets and fairs
- Public distribution system
- Health and sanitation, including hospitals, primary health centres and dispensaries
- Family welfare
- Women and child development
- Social welfare, including welfare of the handicapped and mentally retarded
- Welfare of the weaker sections, and in particular, of the Scheduled Castes and the Scheduled Tribes
- Maintenance of community assets

New PRI System

- **District Level (Zilla Parishad)**
- **Block Level (Panchayat Samiti)**
- **Village Level (Gram Panchayat)**

Today Below State Level

- 532 District Panchayats
More than 175 Districts have women presidents
 - 5912 Block/Mandal Panchayats
More than 1970 Blocks have women heads
 - 2,31,630 Gram Panchayats
More than 77,210 GPs have women heads
- The third stratum elects 30,00,000 members
- Of these
- 10,00,000 are women
- 6,60,000 are SCs/STs (unprivileged community)

PRIs in Orissa

Zilla Parishad (District)	:	30
Panchayat Samiti (Block)	:	314
Gram Panchayat	:	6234

No. of Villages in Orissa = 46,980

General Functions of the PRIs

The Panchayati Raj Institutions have administrative as well as financial powers at the District level, Block level and Gram Panchayat level

Functions of the Gram Panchayat

The Gram Panchayat is the lowest-level self-government democratic body and is empowered :

- To identify and prioritize developmental schemes within its jurisdiction
- To identify beneficiaries of poverty alleviation and other beneficiary oriented programmes
- To decide location of projects
- To implement or supervise the implementation of schemes
- To maintain its assets and properties
- To create awareness among the public

Orissa IRAP

Purpose of IRAP in Orissa

To support the decentralized planning process in India in general and capacity building of PRIs at local level (Block and Gram Panchayat) with respect to Rural Infrastructure Development and Improving Rural Accessibility through the development and transfer of IRAP methodology

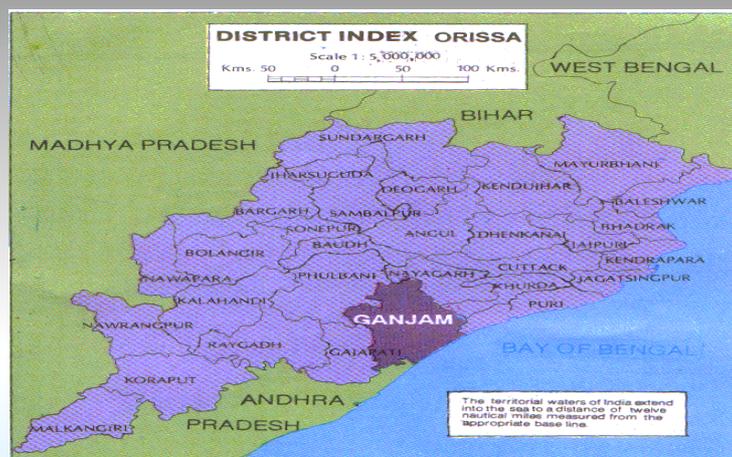
To demonstrate the procedures, adopt generic IRAP processes to Indian conditions and promote the adapt state IRAP process in other other Districts and Blocks in the States

Orissa Project Area

District : Ganjam
Block : Khallikote
Gram Panchayats :
1. Badapalli
2. Badhi Nuapalli
3. Kanaka

Orissa State Map

Showing Ganjam District



Ganjam District Map

Showing Khallikote Block



General Characteristics of Pilot Area

Gram Panchayat	No. of Villages/ Hamlets	Households	Population
Badapalli	17	948	4,554
Badhi Nuapalli	14	1,234	6,610
Kanaka	11	1,095	5,925
Total	42	3,277	17,089

T1 Outputs (Completed Sept. 2002)

- Mobilization of stakeholders
- Trained Panchayat functionaries and officials, community leaders/ volunteers of three GPs on data collection and mapping (T1 exercise)
- Village database for 42 villages/hamlets
- Accessibility database including sector access maps for 3 GPs
- Road Inventory for 3 GPs
- Road Network Map for 3 GPs
- Training Materials
- IRAP Guideline (T1)
- Study Report on Rural Infrastructure Development Decentralized Planning and PRIs in Orissa

Approach

Participatory with active involvement of the PRIs and the local community

Process

- Planning Team & Field Facilitation Team
- Stakeholder Consultation at District, Block & Gram Panchayat Levels
 - Elected Representatives
 - Government Officials
 - Community Leaders
 - Community Based Organizations
 - Village Volunteers

- Collection of Secondary Data
- Consultation with Local Community
 - Village Visit & Discussion
 - Panchayat Level Meetings
 - Selection of Village Volunteers

- **Training on Data Collection & Mapping**

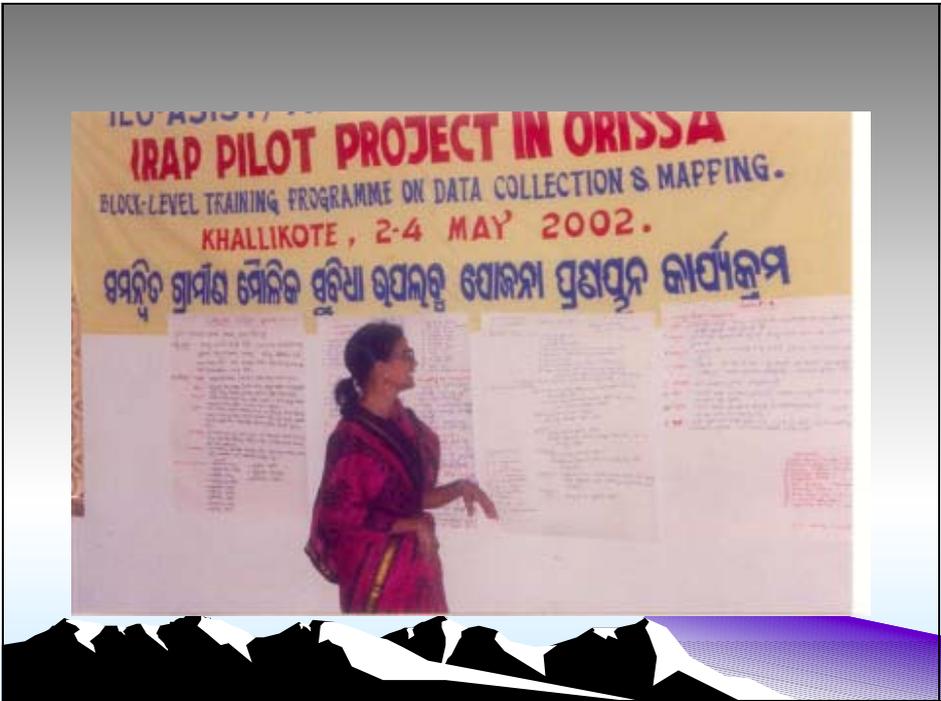
Participants: Village Volunteers, Community Leaders, Block & Panchayat Officials, Elected Representative

Duration: 3 Days

Modules: IRAP Overview, Data Collection Tools, Group Interview Skill & Techniques

Training to PRI Functionaries on Data Collection & Mapping





- **Trainers Training on Mapping**

Participants: Block & Gram Panchayat Level Officials, Local Resource Persons

Duration: One Day

Modules: Preparation of Gram Panchayat Level Sector-wise Accessibility Maps, Road Network Maps & Road Inventory

Training of Trainers on Mapping



- **Data Collection**

Data: Demography, Service/Facility related, Access related

Village-level Primary Data

Panchayat-level Primary Data

Block-level Secondary Data

Tools: Questionnaire

PRA Mapping-Social & Resource Map,

Venn Diagram, Mobility Map

Sectors: Education, Health, Sanitation, Drinking Water, Village Resources, Market, Transportation, Roads, Electricity, Fuel Wood, Cyclone Shelter, Cereal Processing Units

Village level Data Collection





- Unit of Survey

- Revenue Village

- Major Hamlets

- Data Checking, Gap Filling, Correction

Data Organization

- Village Accessibility Database
- Panchayat Accessibility Database

- = Demography

- = Sector Accessibility Data

- = Village Perceived Access Problem & Access Importance

- = Prioritization of Basic Needs

- Access Profile
- Access Maps
- Road Inventory

Thank You



APPLICATION OF IRAP IN RAJASTHAN, INDIA

by

A. K. Sarkar

1. Introduction

The Integrated Rural Accessibility Planning (IRAP) is a local level planning tool that facilitates the identification and prioritisation of the rural development needs by examining the capacity of the rural households to access basic services and facilities. The methodology has been applied successfully in a number of countries in Asia and Africa. In 2001 ILO- ASIST, AP decided to carry out pilot studies on the application of IRAP in two Indian states, namely, Rajasthan and Orissa. Birla Institute of Technology & Science (BITS), Pilani was chosen to apply the methodology in Rajasthan.

2. Formation of study team

A multidisciplinary team of BITS faculty was formed to carry out the study. The team consisted of the following members:

Name	Specialization
Prof. A.K. Sarkar (Coordinator)	Transportation Planning
Prof. Rajiv Gupta	Geographical Information System (GIS)
Dr. Meenakshi Ramam	Languages
Dr. Motilal Dash	Social Science and Participatory Planning

3. Selection of Study Area

Keeping in view the logistic and other constraints, it was decided to take-up the pilot study in Surajgarh *Panchayat Samiti* in Jhunjhunu District. It is under Chirwa *tehsil*. The total area of the *samiti* is 781.44 square km and total population in 1991 was 141, 222.

In the beginning the research team contacted the Block Development Officer (BDO) and the *Pradhan* of Surajgarh Panchayat Samity. The BDO visited BITS Pilani a few times. He also brought a map of the samity, which was subsequently enlarged. Then the research team convened a meeting at Surajgarh, in which the concept of IRAP and how it could be incorporated in the existing framework of decision-making were explained to the Government officials and the elected representatives.

Once the team was satisfied that the government officials and the elected representatives were convinced about the application of IRAP, they were consulted to identify three panchayats where the methodology could be applied as a pilot study. Accordingly the following Panchayats were chosen. The names of the villages were: Khusalpura, Tokha Ka Baas (chhoti), Tokha Ka Baas (bad i), Rajveerpura, Shedu Ki Dhani, Bangothadi (badi), Bangothadi (chhoti), Bhudanpura, Bhagina, Painisingpu ra, Bhisanpura, Netrampura, and Jakhod.

Panchayat	Number of Villages
Jakhode	7
Bagina	4
Bangothri Khurd	2

Mr. John Van Rijn of ILO-ASIST -AP visited Pilani during April 2002 in connection with the project. A meeting was organized in Bagina Panchayat with a few selected villagers and elected representatives. The BOO of Surajgarh Samity was also present in the meeting.

4. Preparation of Questionnaire

The questionnaires developed in different countries for the application of IRAP was studied carefully and a draft was prepared keeping in view the local conditions of the selected study areas. Inputs were also collected from the villagers by visiting the Panchayats occasionally. The questionnaire was thoroughly discussed among the project team members and was modified on the basis of suggestions received from ILO ASIST team, based in Bangkok.

5. Training of the Student Volunteers

For carrying out the study, a team of 10 student volunteers (six boys and 4 girls) were selected from the Institute, who were genuinely interested in the project. After a final draft of the questionnaire was made ready, a workshop was arranged in BITS Pilani. The background and purpose of the project was explained to the students. Then the IRAP methodology, the questionnaire and the procedure of data collection were discussed in detail. A few minor suggestions were also made by the students to improve the questionnaire and they were duly incorporated.

6. Formal Launching of IRAP

A formal meeting was convened at Surajgarh Panchayat Samity Office on 7 June 2003. The following persons were present:

- Research team from BITS Pilani
- Student volunteers from BITS Pilani
- BOO, Panchayat Samity Pradhan and other officials from the office of the BDO
- Sarpanch and two other representatives from each of the 13 villages taken up for the study
- Representatives from local media

The research team explained the objectives of the study and a brief introduction about IRAP was presented in local language. It was encouraging to see that the participants understood the objectives and promised their full cooperation in the implementation of the project. The pilot study was formally inaugurated by the Panchayat Samity Pradhan.

At the end of the meeting, the volunteers under the guidance of the research team, discussed the draft questionnaire with the representatives of the 13 villages. A few minor suggestions were made by them. They were also asked about the suitable date and time for visiting the villages for data collection. Enquiries were also made regarding suitable venue and how to collect people so that a representative sample could be obtained representing women, schedule casts, scheduled castes and harijans. The contact phone numbers of the Sarpanchs were also noted down.

7. Training of the Volunteers from the selected villages

Two persons from each Panchayat were chosen and were trained in the data collection process. The training was carried out in four stages:

- i The trainees were invited to BITS Pilani and were given an overview of IRAP methodology. The questionnaire prepared was discussed in detail and then the procedure for collecting the required information and recording was explained.
- ii During the data collection process in the first few villages, these volunteers were asked to accompany the team and observe the method of data collection and recording.
- iii For collecting data for the next few villages, the volunteers were asked to fill in the questionnaire with the help of the student volunteers.
- iv When the research team was satisfied that the volunteers had developed enough confidence, they were asked to collect data independently. However, the student volunteers and the research team were available for help in case of any difficulty.

8. Data Collection

A few members of the team visited all the villages in advance and contacted the concerned Sarpanchs to select the date, time and venue for the meeting with the representatives of the villages for the collection of data. Keeping in view the fact the data was collected in summer, it was suggested by the villagers to organize the meetings in the morning hours.

Accordingly, the meetings were arranged at 8.00am, except for Bangothri Khurd where it was organized in the evening.

11. Quantification of Aecessibility

A meeting was convened by ILO- ASIST AP in Delhi in August 2002 where the technique of quantification of accessibility was discussed in detail. Representatives from Rajasthan and Orissa and a few other experts were present along with the ILO representatives. It was decided to consider accessibility to four basic facilities and services for this pilot study. They are: safe drinking water, education, health and transport services .

Safe Drinking Water

Parameter 1: No. of households in the village

No. of households	Weight factor
Less than 50	1
50-100	2
100-200	3
200-300	4
Above 300	5

Parameter 2: Total Time Spent in Collecting water

Travel time

Effective Travel Time (ETT) = Total time for a trip -acceptable travel time

Frequency of visits

F = Number of visits to the water source per day for the required amount of water.

Total Time Spent in Water Collection (TT) = ETT x F

TT	Weight Factor
Less than 30 min	1
30 – 60 min	2
1 hr – 2 hrs	3
2 hrs – 3 hrs	4
More than 3 hrs	5

Parameter 3: Source of Potable Water

Type of source	Weight factor
Tube well, tap water	1
River, lake, well	3
Potable water not available	5

Water Priority Index (WPI)

$$WPI = \text{Parameter 1} \times (w1) + \text{Parameter 2} \times (w2) + \text{Parameter 3} \times (w3)$$

Where $w1$ = Weight of Parameter 1 (*number of households in the village*)

$w2$ = Weight of Parameter 2 (*total time spent for the collection of water*)

$w3$ = Weight of Parameter 3 (*source of potable water*)

Educational facilities

Parameter 1: No. of households in the village

No. of households	Weight factor
Less than 50	1
50-100	2
100-200	3
200-300	4
Above 300	5

Parameter 2: Travel time

Effective Travel Time travel time (ETT) = Time for reaching the school – acceptable travel time

ETT in min	Weight factor
Less than 10	1
10-20	2
20-30	3
30-60	4
More than 60	5

Parameter 3: Teachers to classroom ratio

Teacher/Classroom	Weight
More than 1	1
1	3
Less than 1	5

Education Priority Index (EPI)

$$\text{EPI} = \text{Parameter 1} \times (w1) + \text{Parameter 2} \times (w2) + \text{Parameter 3} \times (w3)$$

Where $w1$ = Weight of Parameter 1 (*number of households in the village*)

$w2$ = Weight of Parameter 2 (*effective travel time*)

$w3$ = Weight of Parameter 3 (*teacher to classroom ratio*)

Health

Parameter 1: No. of households in the village

No. of households	Weight factor
Less than 50	1
50 - 100	2
100 - 200	3
200 - 300	4
Above 300	5

Parameter 2: Travel time

Effective Travel Time (ETT) = Total time for a trip - acceptable travel time

ETT in min	Weight factor
Less than 10	1
10-20	2
20-30	3
30-60	4
More than 60	5

Parameter 3: Availability of Basic services

Kind of facility in health care	Weight Factor
Indoor facilities with emergency services (24 hours)	1
Outdoor with doctor available in specific time	2
Outdoor with irregular visits of doctor	3
Only first aid managed by compounder/ANM	4
Only the building	5

Health Priority Index (HPI)

$$\text{HPI} = \text{Parameter 1} \times (w1) + \text{Parameter 2} \times (w2) + \text{Parameter 3} \times (w3)$$

Where $w1$ = Weight of Parameter 1 (*number of households in the village*)

$w2$ = Weight of Parameter 2 (*effective travel time*)

$w3$ = Weight of Parameter 3 (*availability of basic services*)

Road and Transport

Parameter 1

No. of households	Weight factor
Less than 50	1
50 - 100	2
100 - 200	3
200 - 300	4
Above 300	5

Parameter 2

Distance of the village from the nearest point, where regular transport is available:

Distance in km	Weight
Less than 1/2	1
1/2 to 1	2
1 to 2.5	3
2.5 to 5	4
Above 5	5

Parameter 3

Condition of road/ path and all weather usefulness for bicycles, animal carts and motorized vehicles:

Condition of road	Weight
Good firm road surface usable through out the year	1
Surface condition poor, but usable through out the year	2
Poor road surface during summer (dust) and/or rainy season (mud)	3
Very poor surface condition through out the year and unusable during summer (dust) and rainy seasons (mud)	4
Can only be used by pedestrian and pack animals	5

12. Conclusion

The first phase of the project has been completed successfully. The second phase is going to start shortly. The study has generated enough interest among the local level decision makers and government officials in the Panchayats where the study has been carried out. Efforts would be made to educate the officials and elected members at the district level regarding IRAP during the second phase of the study. Recently, BITS, Pilani has been chosen as one of the seven Principal Technical Agencies (PT A) in India by the National Rural Road Development Agency (NRRDA) of the Ministry of Rural Development, Government of India for assisting the implementation of Pradhan Mantri Gram Sadak Yojana (PMGSY) in the states of Rajasthan, Haryana and Punjab. This will further help in establishing contact with these state governments and the Government of India and explore the possibilities of implementation of IRAP in India as a whole.

Application of IRAP in Rajasthan, India

By

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Birla Institute of Technology & Science, Pilani
Rajasthan (India)

Selection of Study Area

- ◆ Keeping in view the Logistic and other constraints, it was decided to take up a pilot study in Surajgarh block in Jhunjhunu district
- ◆ The BDO and Pradhan of the block were contacted and IPAR methodology was explained to them

Continued.....

- ◆ Both the BDO and Pradhan were consulted to select the panchayats
- ◆ A map of the block was collected from the BDO office
- ◆ The Panchayats are :
 - Jakhode ----- (7 Villages)
 - Bagina ----- (4 Villages)
 - Bangothri Khurd ----- (2 Villages)

Preparation of Questionnaire

- ◆ Questionnaires of early studies were gone through
- ◆ Draft Questionnaire was distributed among experts
- ◆ Suggestions were sought from ILO-ASIST-AP team
- ◆ The ILO project was formally launched

Continued.....

- ◆ Draft Questionnaires was explained to the student volunteers (10 Numbers)
- ◆ A formal meeting was conducted at Surajgarh Panchayat office, persons present were:
 - Research Team from BITS
 - Student Volunteers
 - Representatives (Sarpanch) from all the 13 Villages
 - BDO, Pradhan and other officials

Continued.....

- ◆ At the end the student volunteers discussed the draft questionnaire with Sarpanch and other villagers presents there.
- ◆ The Questionnaire was given a final touch based on the discussion

Continued.....



Data Collection Team in Surajgarh Block

Continued.....



Formal Inauguration of IRAP In Surajgarh

Continued.....



Questionnaire Preparation in Consultation with the Villagers

Continued.....



Questionnaire Preparation in Consultation with the Villagers

Training of the Student Volunteers

An intensive training session was conducted for the student volunteers as:

- ◆ IRAP
- ◆ Objective of the present project
- ◆ Data collection methods
- ◆ Filling the Questionnaire

Training of the Representative from the selected Gram Panchayats

Two persons from each Panchayat were chosen and were trained in the Data Collection Process. The training was carried out in four stages:

- ◆ Providing an overview of IRAP and details of the Questionnaire

Continued.....



Training of the Representative from the selected Gram Panchayats

Continued.....

- Observing the data collection process in the field while being done by the student volunteers or experts
- Collection of data with the help of student volunteers
- Collection of data independently (student and experts interviewed only when required)

Data Collection

- ◆ A few selected team members visited all the villages to select suitable sites for the meeting for data collection
- ◆ The concerned Sarpanch was contacted to fix date and time of data collection in village

Continued.....

- ◆ Efforts were taken to assemble various sections of the villagers so as to represent the entire village
- ◆ Special care was taken to bring woman representatives in the meeting
- ◆ Keeping in view that the data collection was conducted in summer, meetings were arranged in the morning hours (except for Bangothri Khurd)

Continued.....



Inauguration of Data Collection Process

Continued.....



Data Collection Process

Continued.....



Data Collection Process

Continued....



Data Collection Process

Continued.....



Data Collection Process

Continued.....



Data Collection Process

Continued.....



Special Meeting with Women

Continued.....



Informal Meeting with the Villagers

Continued.....



Informal Meeting with the Villagers

Continued.....



Informal Meeting with the Villagers

Data Input and Analysis

- ◆ The questionnaire was developed in such a way as to use Microsoft Access Software

Experience during the this phase

- ◆ Government officials were very positive about the application of IRAP
- ◆ The elected representatives, Sarpanch and Pradhan and the common villagers understood the utility of the methodology
- ◆ Received full cooperation from all quarters

Continued.....

- ◆ Efforts made to give wide publicity regarding IRAP through local newspapers turned out to be highly successful
- ◆ The student volunteers were very enthusiastic and thoroughly enjoyed their participation
- ◆ Informal discussion with the villagers helped to understand the problem better

Continued.....

- ◆ Arranging a woman representative in the group was not easy
- ◆ The women were quite vocal in the absence of the male members
- ◆ The volunteers from the villages were not very confident even though they did a nice job

THANK YOU

Safe Drinking Water

Parameter1: No of house holds in the village

No of House Holds	Weightage factor
Less than 50	1
50-100	2
100-200	3
200-300	4
300 and above	5

Parameter 2: Total time spent in collecting water

Travel time

Effective Travel Time (ETT)= Total time for a trip –
acceptable travel time

Frequency of visits

F= Number of visits to the water source per day for
the required amount of water

Total time spent in water collection (TT)= ETT x F

Continued...

TT	Weightage factor
Less than 30 min	1
30-60 min	2
1 hr- 2 hrs	3
2 hrs – 3 hrs	4
More than 3 hrs	5

Parameter 3 : Source of Potable Water

Type of source	Weightage factor
Tube well, tap water	1
River, lake, well	3
Potable water not available	5

Continued...

Water Priority index (WPI)= Parameter 1 x (w1) +
Parameter 2 x (w2) + Parameter 3 x (w3)

Where

w1= Weight of parameter 1 (No. of households in
the village)

w2=Weight of parameter 2 (total time spent for the
collection of water)

w3= Weight of parameter 3 (source of potable
water)

Educational facilities

Parameter 1 : No. of house holds in the village

No of house holds	Weight factor
Less than 50	1
50-100	2
100-200	3
200-300	4
300 and Above	5

Parameter 2 : Travel Time

Educational travel time (ETT)=
Time for reaching school- acceptable travel time

ETT in min	Weight Factor
Less than 10	1
10-20	2
20-30	3
30-60	4
More than 60	5

Parameter 3 : Teachers to Class Room Ratio

Teacher/Class Room	Weight Factor
More than 1	1
1	3
Less than 1	5

Continued...

Education Priority Index (EPI)= Parameter 1 x
(w1) + Parameter 2 x (w2) + Parameter 3 x (w3)

Where

w1= Weight of parameter 1 (No. of households in
the village)

w2=Weight of parameter 2 (Effective travel time)

w3= Weight of parameter 3 (teacher to classroom
ratio)

Health

Parameter 1 : No. of House Holds in the Village

No of House Holds	Weight Factor
Less than 50	1
50-100	2
100-200	3
200-300	4
300 and above	5

Parameter 2 : Travel time

**Effective Travel time (ETT)=
Total time for a trip- acceptable travel time**

ETT in min	Weight Factor
Less than 10	1
10-20	2
20-30	3
30-60	4
More than 60	5

Parameter 3 : Availability to Basic Services

Kind of Facility in Health Center	Weight Factor
Indoor facilities with emergency services (24 hours)	1
Outdoor with doctor available in specified time	2
Outdoor with irregular visits of doctor	3
Only first aid managed by compounder /ANM	4
Only the building	5

Continued...

Health Priority Index (HPI)= Parameter 1 x (w1) +
Parameter 2 x (w2) + Parameter 3 x (w3)

Where

w1= Weight of parameter 1 (No. of households in
the village)

w2=Weight of parameter 2 (Effective travel time)

w3= Weight of parameter 3 (availability of basic
services)

Road and Transport

Parameter 1 : No. of House Holds in the Village

No of House Holds	Weight Factor
Less than 50	1
50-100	2
100-200	3
200-300	4
Above 300	5

Parameter 2: Distance of the Village from the Nearest Point, where Regular Transport is Available

Distance in km	Weight Factor
Less than ½	1
½ to 1	2
1 to 2.5	3
2.5 to 5	4
Above 5	5

Parameter 3 : Condition of road/path and all weather usefulness for bicycles, annual carts and motorized vehicles

Condition of Road	Weight Factor
Good firm road surface usable through out the year	1
Surface condition poor, but usable through out the year	2
Poor road surface during summer (dust) and/or rainy season (mud)	3
Very poor surface condition through out the year and unusable during summer (dust) and rainy seasons (mud)	4
Can only be used by pedestrian and pack animals	5

The first phase of the project has been completed successfully. The second phase is going to start shortly. The study has generated enough interest among the local level decision makers and government officials in the Panchayats where the study has been carried out. Efforts would be made to educate the officials and elected members at the district level regarding IRAP during the second phase of the study.

Continued...

Recently, the BITS, Pilani has been chosen as one of the seven Principal Technical Agencies (PTA) in India by the National Rural Road Development Agency (NRRDA) of the Ministry of Rural Development, Government of India for assisting the implementation of Pradhan Mantri Gram Sadak Yojana (PMGSY) in the states of Rajasthan, Haryana and Punjab. This will further help to be in contact with these state governments and the Government of India and explore the possibilities of implementation of IRAP in India.

ANNEX 6

LAO PDR

**PRTP, Local Roads Division, Roads Department,
MCTPC
Vientiane Lao PDR**

**PRTP as Rural Road Planning Tool: The Lao
PDR Experience**

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Former IRAP

PRTP

***P*articipatory *R*ural *T*ransport
*P*lanning**

MCTPC

Department of Road,

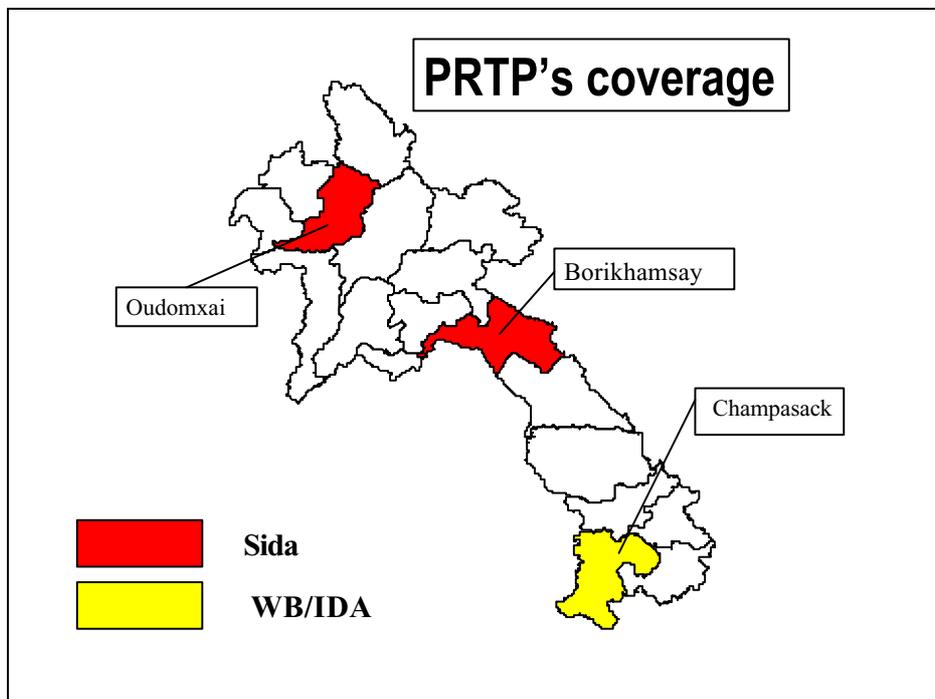
Local Roads Division

Oudomsay, Borikhamsay/Sida,

Champack/WB

Transition to P RTP

- New institute arrangement
- Sector focus
- MCTPC, DoR intention to apply for road sector
- Funding Institute Change



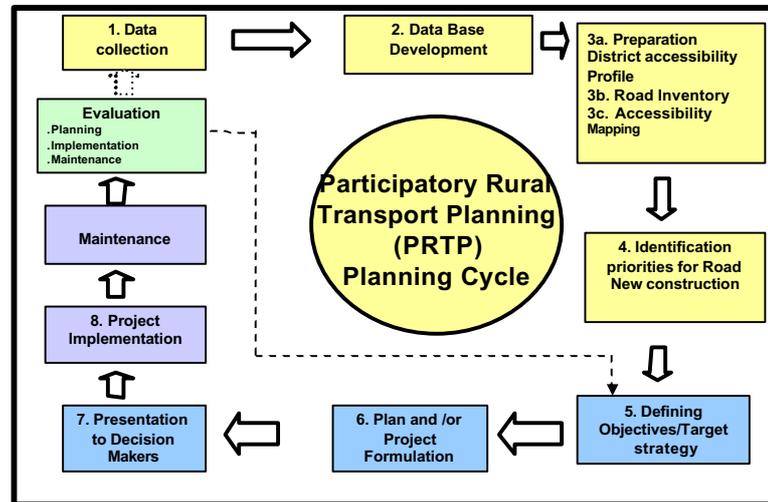
PRTP Development Objective

- To improve rural communities' access to basic, social and economic goods and services; and to improve the capacity for local road development personnel

PRTP Specific Objective

- Establish a system for planning of improvement of rural access based on the needs of basic access considering the present financial limitations

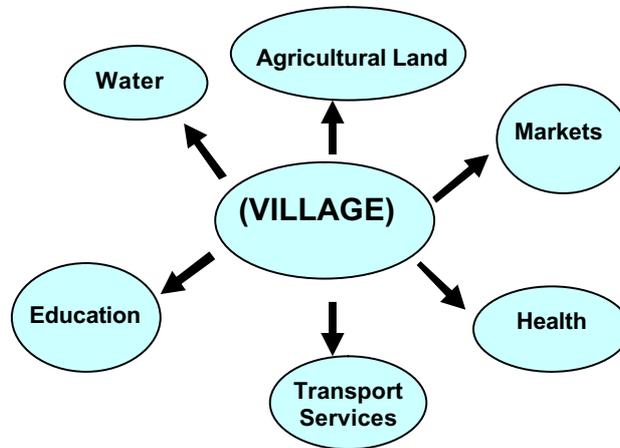
PRTP Planning Cycle



PRTP task

- Inventory of Rural Road, track and important footpath.
- Classify all roads, track and footpath
- Identify the needs of improvement
- prioritization of need improvement
- Presentation on the map use of GPS
- Build capacity of field personel(district) on Local road planning

Data collection



Data collection...

- General Characteristics of village
- Roads access- Track, Trial, footbridge and footpath.
- Identification of problem areas hampering year around road transport
- Transport services
- Education

Data collection...

- Health care services
- Livelihood
- Markets
- Village problems
- Priorities projectd

Data collection...

- All villages visit in pilot districts.
- Participatory approach.
- Multi - sectors, social, economic and infrastructure sector.
- Collection facts of the ease and difficulties of the access to services through looking at travelling time.

Prioritization

Step1: Screening

Step2: Socio-Economic Ranking

Step3: Technical and Environmental Impact
Assessment.

Prioritization...

- **Step1: Screening**
 - The road link must run through an area inhabited by people.
 - Should connect with all weather road.
 - Must not be closely parallel to another all-weather road.
 - Could be maintained using local labour and material.
 - Should serve the population at large.

Prioritization...

- **Step2: Socio-economic Ranking**
 - Ten Indicators
 - Weighting
 - Benefit = $\text{Ind}_1 * W_1 \dots \text{Ind}_{10} * W_{10}$
 - Total cost/Population* Socio-economic Benefits
(The lowest ratio is the first priority)

Prioritization...

Step3: Technical Assessment.

- Summary of Existing road/Non-engineered roads.
- Outline Design
- Options
- Quantity and Cost estimate
- Implementation Arrangement

Prioritization...

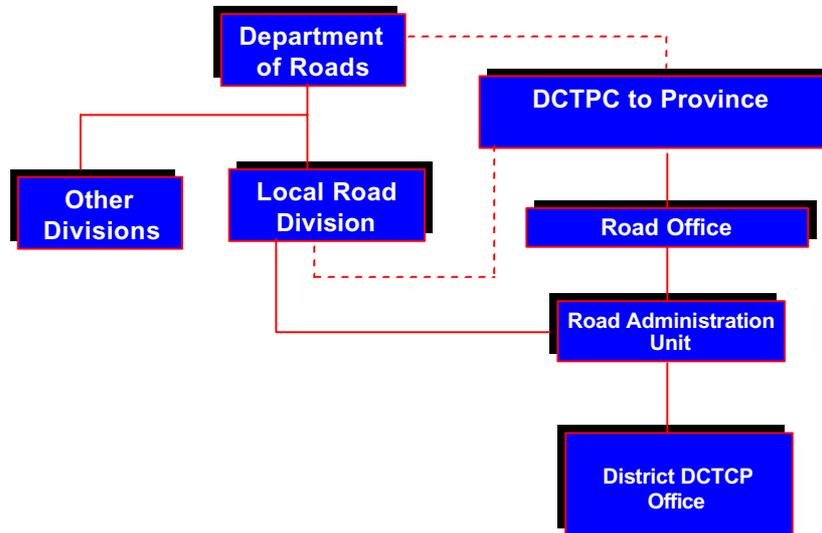
Step3A: Environmental impact Assessment.

- Agriculture production
- Settlements Areas
- Forest cover
- Non-timber Forest Products
- Wildlife Habitats
- Water Resources

Outputs:

- Village Data Base
- Engineer and non-engineered road network map.
- District Profile.
- Priority Engineer and non-engineered road project and action plan.

Networking Chart of PRTP



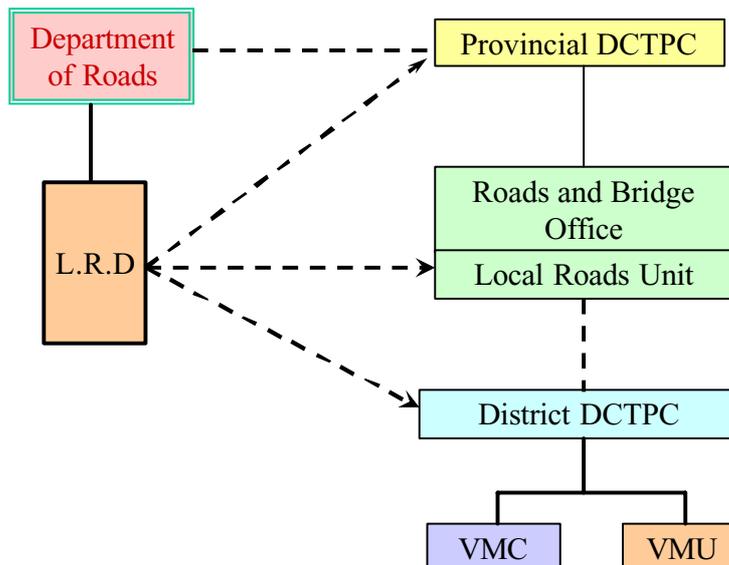
***THANKS FOR YOUR
ATTENTION***

COMMUNITY ROAD MAINTENANCE WORKSHOP

ORGANISATION OF LOCAL ROAD ADMINISTRATION AND MAINTENANCE

By
OUNHEUANE SIRIAMPHONE

LRD Structure



Role of Local Roads Unit under Road and Bridge Office, Provincial DCTPC

- Its Role is to set up planning for managing district roads and community roads for construction and maintenance
- **The tasks are :**
- 1. Summary district roads and rural roads in the province as statistics and information and to assist district DCTPC Office in setting up short and medium term plans to submit to Provincial Road and Bridge Office and DCTPC.

Task of LRU , continue

- 2. Liaise and collaboration with other Units under Provincial Road and Bridge Office, District CTPC and Rural Road Development Projects to apply appropriated techniques and technologies that suit with project monitoring system.
- 3. Train district staff and villagers for district roads and rural road construction and maintenance using Labor Based Equipment Support Technology.

Task of LRU , continue

- 4. Assist Road and Bridge Office as well DCTPC for monitoring Rural Roads Projects within the province.
- 5. Liaise and cooperation with districts DCTPC on monitoring and support Village Maintenance Unit for rural road maintenance.

Local Roads Unit setting up

- The establishment of this Unit should approve by Minister of MCTPC because it is related to the increase of staff and budget.
- DoR should discuss with the DCTPC the necessity to create this unit .

Role of Village Maintenance Committee (VMC)

- Its role is to implement rural road maintenance under supervision of District CTPC.

The tasks are :

- 1. To be a key body in rehabilitation and maintenance of responsible roads.
- 2. Implementation road maintenance as planned.

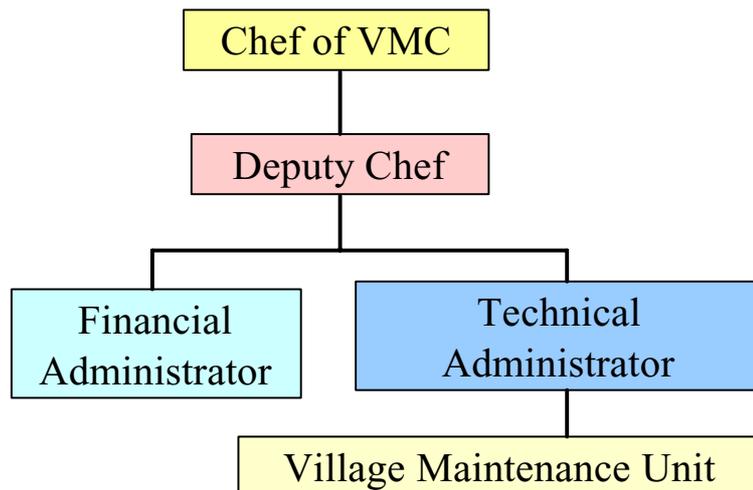
Task of VMC , continue

- 3. Collaboration with district CTPC office to carry out technical survey.
- 4. Contacting agreement with individual, community and groups of contractors.
- 5. Organization of the activities and villagers participation.
- 6. Following up and record the participation of villagers(Social labor, pay...etc)

The VMC setting up

- The VMC should elect by Community living along the road at least two villages.
- The VMC composed of a Chef, Deputy Chef, Financial administrator and technical administrator, all of them have to elect by the Community.

VMC organization



Role of Village Maintenance Unit (VMU)

- Its role is to implement the road construction and maintenance using the village labor.

The tasks are :

- 1. Record and list of labor in the village participation for road maintenance. Based on their responsibility.
- 2. Record and list of vehicles, equipment and tools to use for construction and maintenance activities.

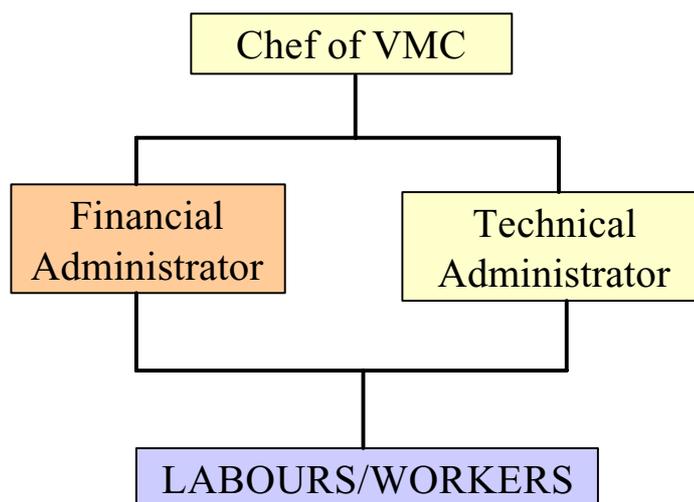
Task of VMU , continue

- 3. Contracting and obligating with concerned organization.
- 4. Organize and plan activities to allocate to villagers.
- 5. Attend the training on road construction and maintenance courses.
- 6. Report monthly to district DCTPC office on road condition inventory as their responsibility.
- 7. Conduct village meeting to evaluate the implementation.

The VMU setting up

- The VMU should elect by Villagers living in villages.
- The VMU composes of a Chef, Financial administrator and technical administrator, all of them have to elect by the Villagers.

VMU organization



How to select the Labors ?

- The Selection should follow the policy of the government such as to increase the income of the poorest family or the one who want to leave the slush and burnt plantation.
- The village leader in cooperation with the social organization and VMU should discuss among themselves according to criteria to select the labors.
- The Labors will supervise by the VMU and they will get pay if they are fulfill the tasks.

***Thank you for your
attention !***

ANNEX 7

Cambodia

**HOW TO CREATE
ACCESSIBILITY INDICATORS**



**Guidelines for Constructing
Accessibility
Indicators**

**Siem Reap
November 2000**

1.0 Introduction:

IRAP makes a distinction between accessibility to basic needs and basic services.

Basic needs are daily necessities like drinking water, fuel wood, agricultural land and employment. Basic services are provided by governmental or private institutions and are needed to achieve a reasonable standard of living, like health care, education, transport infrastructure, pagoda and markets. To describe the accessibility situation of villages on a District IRAP uses accessibility indicators. For basic needs access to safe drinking water and for basic services access to schools, health care, markets and transport infrastructure.

Each accessibility indicator consists of a number of factors that through calculation and weighing are combined in one value. This value describes the accessibility situation of that village relative to others.

In the remainder of this manual it will be explained in detail which factors are included and how to calculate the accessibility indicator.

2.1. Drinking water indicator

The information needed for calculating the drinking water accessibility indicators is: the village size, type of wells available, source of drinking water, the number of months that there is water shortage one way travel time to fetch water in wet season and the household per well ratio.

DW1: Village size

Every village obtains a score based upon its population size

1 = <500 persons

2 = 500 – 700

3 = 701 – 900

4 = > 900

DW 2: Type of drinking water

This factor makes a distinction between modern or traditional wells. Modern types of wells are a pump and/or a ring wells and the traditional type is hand-dug wells. Four classes are made:

1 = modern type only

2 = modern and traditional

3 = Traditional type

4 = no type at all

Every village obtains a score depending on the type of wells available in the village.

DW 3: Source of drinking water

Every village obtains a score depending on from where the majority of families fetch their drinking water. Four classes are made:

1	=	well
2	=	pond
3	=	rain
4	=	river

DW 4: Water shortage

This factor considers the total number of months that a village is without drinking water. More months of water shortage means less access to drinking water.

Four classes are made:

1	=	0-3 months of water shortage
2	=	3-6 months of water shortage
3	=	6-9 months of water shortage
4	=	9-12 months of water shortage

DW 5: Travel time

This is the one way travel time, walking to the nearest water source in the wet season, expressed in minutes. Four classes are made:

1	=	< 5 minutes
2	=	5-10 minutes
3	=	11-15 minutes
4	=	> 15 minutes

DW 6: House hold per well

This factor is an expression of the number of households in a village divided by the number of functioning pump/ring wells. Fifteen households per well is taken as threshold

$$\frac{\text{\# of home hold in village}}{\text{Total number of pump and ring wells}}$$

Four classes are made

1	=	less than 3 households per well
2	=	4 to 6 households per well
3	=	7 to 12 households per well
4	=	greater than 15 households per well

These six factors are combined into one value to obtain the accessibility indicator.

Weighing

However not every factor is of equal importance. To be able to express this relative importance a weight is assigned to each factor, ranging from 1 to 6. The most important factor gets a 6, the next a 5, etc.

The weight is multiplied with the accessibility value to obtain the weighed value.

Village size value	*	3	=	DW1 weighed value
Drinking water value	*	5	=	DW2 weighed value
Water source value	*	6	=	DW3 weighed value
Water shortage value	*	2	=	DW4 weighed value
Travel time value	*	1	=	DW5 weighed value
Household per well value	*	4	=	DW6 weighed value

To calculate the accessibility indicator (DWA), all weighed values are summed and divided by the sum of weights, in this case 21 and classified into four classes:

$$\text{Accessibility score: } \frac{(\text{DW1} + \text{DW2} + \text{DW3} + \text{DW4} + \text{DW5} + \text{DW6 weight values})}{21}$$

Every village will have a value between 1 and 4; the higher the value the poorer the accessibility to safe drinking water. These values are then grouped in four classes, each class having 25% of the villages.

- Accessibility class 4 = 25 % of the villages with the highest scores
- Accessibility class 3 = 25 % of the villages with the next highest scores
- Accessibility class 2 = 25 % of the villages with the highest scores
- Accessibility class 1 = 25 % of the villages with the lowest scores

The bigger the value of the Accessibility indicator the poorer the access to safe drinking water.

2.2 Education Accessibility Indicator

This indicator expresses the accessibility of a village to education. The information included is: village size, the existence of a school in the village, the size of the school, the school attendance, the travel time to school and the travel cost.

E1: Village size

Every village obtains a score base upon its population size:

1	=	< 500 persons
2	=	500-700
3	=	701-900
4	=	> 900

E2: Presence of primary school

This factor indicates both the presence and the number of grades of a school in a village. A complete school is considered a school with grade 1 to 6, an incomplete is considered a school with less than 6 grades. No school or an incomplete school indicates less access to education. Every village obtains a score between one and four:

1	=	Complete school
2	=	Incomplete school
4	=	No school

E3: School size

The amount students attending the school is compared with the number of classrooms available. This gives an indication of the physical access the pupils have to the school.

$$\frac{\text{\# of students}}{\text{Number of classrooms}}$$

Every village obtains a score ranging from one to four:

1	=	1- 30 students per classroom
2	=	31 -40 students per classroom
3	=	> 40 students per classroom
4	=	no school in the village

E4: School attendance

This factor describes the percentage of children actually attending school:

$$\frac{\text{\# students attending primary school}}{\text{Village population}} * 100$$

1	=	>25%
2	=	20-25
3	=	15 -19
4	=	<15%

E5: Standard travel time

Children use different modes of transport, the walk, use a bicycle or a motorcycle to reach school. To be able to compare the different travel times all modes of transport are converted to one standard travel mode: the bicycle. Therefore the following conversion factors are used:

Conversion table for SIT

Travel mode code	Description of transport	Assumed speed of transport	Conversion factor
1	Walking	5 Km/hr	0.5
2	Bicycle	10 Km/hr	1.0
3	Motorcycle	20 Km/hr	2.0
4	Motor trailer	10 Km/hr	1.0
5	Car	40 Km/hr	4.0
6	Motorised boat	20 Km/hr	2.0
7	Non-motorised boat	5 Km/hr	0.5

After the travel time is converted it is called the standard Travel Time (STT)

Every village obtains a score, based upon the STT classification:

1	=	<10 minutes travel time to school
2	=	10-20 minutes travel time to school
3	=	21-40 minutes travel time to school
4	=	>40 minutes travel time to school

E6: Standard travel cost

The travel cost is calculated considering what it would cost a student to hire a motodup in the wet season to travel to school, this is called the Standard Travel Cost (STC).

Every village obtains a score, based upon the STC classification:

1	=	<200 Riel travel cost to school
2	=	200-500 Riel travel cost to school
3	=	501-1000 Riel travel cost to school
4	=	>1000 Riel travel cost to school

These six factors are combined into one value to obtain the accessibility indicator.

Weighing

However not every factor is of equal importance. To be able to express this relative importance a weight is assigned to each factor, ranging from 1 to 6. The most important factor gets a 6, the next a 5, etc.

The weight is multiplied with the accessibility value to obtain the weighed value

Village size value	*	1	= E1 weighed value
Presence of Primary school value	*	2	= E2 weighed value
School size value	*	3	=E3 weighed value
School attendance value	*	4	=E4 weighed value
Standard travel time value	*	5	=E5 weighed value
Standard travel cost value	*	6	=E6 weighed value

To calculate the accessibility score, all weighed values are summed and divided by the mID of weights, in this case 21:

$$\text{Accessibility score: } \frac{(E1+E2+E3+E4+E5+E6, \text{ weight values})}{21}$$

Every village will have a value between 1 and 4; the higher the value the poorer the accessibility to safe drinking water. These values are then grouped in four classes, each class having 25% of the villages.

Accessibility class 4	=	25 % of the villages with the highest scores
Accessibility class 3	=	25 % of the villages with the next highest scores
Accessibility class 2	=	25 % of the villages with the highest scores
Accessibility class 1	=	25 % of the villages with the lowest scores

The bigger the value of the Accessibility indicator the poorer the access to safe drinking water.

2.3 Health Care Accessibility indicator

This indicator compiles eight elements that describe the accessibility of a village to health care. The elements are village size, availability of health personnel in the village, STT and STC to nearest pharmacy, to the nearest health centre and to the nearest hospital.

HC1: Village size

Every village obtains a score based upon its population size:

1	=	< 500 persons
2	=	500-700
3	=	701-900
4	=	> 900

HC2: Health care in the village

The availability of health care is expressed by the presence of different kinds of health care providers in the village:

	Yes	No
• Health workers	0	1
• Traditional birth attendants	0	1
• Kru Khmers	0	1
• Trained midwives	0	1

Every village will obtain a score ranging between 1 to 4.

1	=	0, 1
2	=	2
3	=	3
4	=	4

HC3: STT to the nearest Pharmacy

A pharmacy in a rural area is a shop where some essential medicines are sold. It is not necessarily a medicine shop or manufacturer. The travel time for each village is converted into STT.

1	=	< 10 minutes
2	=	10 -20 minutes
3	=	21 -30 minutes
4	=	> 30 minutes

Every village will obtain a score between 0 and 4.

HC4: STC to the nearest Pharmacy:

The factor is calculated by taking the price of what it would cost to hire a motodup in the wet season to go to the pharmacy.

Four classes are made:

1	=	< 200 Riel
2	=	200 -500 Riel
3	=	501 -1,000 Riel
4	=	1,000 Riel

HC5: STT to the nearest Health centre

For the travel time in the wet season is taken when the accessibility to the health centre is poorest for the patients. The travel time for each village is converted into SU.

1	=	< 20 minutes
2	=	20 -30 minutes
3	=	31 -60 minutes
4	=	> 60 minutes

HC6: STC to the nearest health centre

The factor is calculated by taking the price of what it would cost to hire a motodup in the wet season to go to the health centre:

1	=	< 500 Riel
2	=	500 –1,000 Riel
3	=	1001 –2,000 Riel
4	=	> 2,000 Riel

HC7: STT to the nearest Hospital

The hospital is located either in the district centre or in the provincial capital. For every village the STT is calculated. After that every village will obtain a score based upon the STT classification:

1	=	< 45 minutes
2	=	45 -60 minutes
3	=	59 -90 minutes
4	=	>90 minutes

HC8: STC to the nearest Hospital:

The factor is calculated by taking the price of what it would cost to hire a motodup in the wet season to go to the hospital:

1	=	< 1,000 Riel
2	=	1,000 -2,500 Riel
3	=	2501 -5,000 Riel
4	=	> 5,000 Riel

These eight factors are combined into one value to obtain the accessibility indicator.

Weighing

However not every factor is of equal importance. To be able to express this relative importance a weight is assigned to each factor, ranging from 1 to 8; the most important indicator gets 8, the next 7, etc. The weight is multiplied with the accessibility value to obtain the weighed value

Village size value	*	8	=	HC1 weighed value
Health personnel value	*	7	=	HC2 weighed value
TT to Pharmacy value	*	1	=	HC3 weighed value
TC to Pharmacy value	*	5	=	HC4 weighed value
TT to Health centre value	*	4	=	HC5 weighed value
TC to Health centre value	*	7	=	HC6 weighed value
TT to Hospital value	*	2	=	HC7 weighed value
TC to Hospital value	*	3	=	HC8 weighed value

To calculate the accessibility score, all weighed values are summed and divided by the mm of weights, in this case 36:

Accessibility score: $\frac{(HC1+HC2+HC3+HC4+HC5+HC6+HC7+HC8 \text{ weighed values})}{36}$

36

Every village will have a value between 1 and 4; the higher the value the poorer the accessibility to safe drinking water. These values are then grouped in four classes, each class having 25% of the villages.

- Accessibility class 4 = 25 % of the villages with the highest scores
- Accessibility class 3 = 25 % of the villages with the next highest scores
- Accessibility class 2 = 25 % of the villages with the highest scores
- Accessibility class 1 = 25 % of the villages with the lowest scores

The bigger the value of the Accessibility indicator the poorer the access to safe drinking water.

2.4 Market Accessibility Indicator

This indicator is a compilation of five elements that describe the accessibility of a village to the market or economic growth centre. The information includes the village size, the STT and STC to the nearest market to sell and the STT and STC to the nearest market to buy.

M1: Village size

Every village obtains a score base upon its population size:

1	=	< 500 persons
2	=	500-700 persons
3	=	701-900 persons
4	=	> 900 persons

M2: STT to the nearest market to sell products

The travel time in the wet season to the nearest market is taken, when the accessibility to the road network is the poorest. When having converted the STT it is divided into four classes:

1	=	<45 minutes
2	=	45 -90 minutes
3	=	91 -120 minutes
4	=	> 120 minutes

M3: STC to the nearest market to sell produce

Besides the travel time is important to know how much it costs to get to the market to sell. This is calculated by taking the price of what it would cost to hire a motodup to get to the nearest market.

Four classes are made, the higher the number the higher the travel cost to the market.

1	=	< 1,000 Riel
2	=	1,000 -2,500 Riel
3	=	2,5010 -5,000 Riel
4	=	> 5,000 Riel

M4: Standard Travel Time to the nearest market to buy

The travel time in the wet season to the nearest market is taken. When the accessibility to the road network is the poorest. When having converted the STT it is divided into four classes:

1	=	<45 minutes
2	=	45 -90 minutes
3	=	91 -120 minutes
4	=	> 120 minutes

M5: Standard Travel Cost to the nearest market - Buy

Beside the travel time is important to know how much it costs to get to the market to buy. Taking the price of what it would cost to hire a motodup to get to the nearest market does this.

We divide this into 4 classes. the higher the number the higher the travel cost to the health centre.

Standard Travel Cost (STC):

1	=	<1, 000 Riel
2	=	1,000 -2,500 Riel
3	=	2,501 -5,000 Riel
4	=	> 5,000 Riel

Weighing

To be able to express this we assign a weight to every individual indicator, ranging from 1 to 5; the most important indicator gets 5, the next 2, and the last 1, according to their in1) importance. The next step is to multiply the value of the individual indicator with the weight.

2.5 Rural Transport Accessibility Indicator

This indicator is a compilation of nine elements that describe the accessibility of a village to rural transport infrastructure (RTT). The elements are: village size, type of access, the transport capacity, the STT and the STC to the nearest all weather road and to the district centre, the availability of Transport services in the employment opportunity in the village.

R1: Village size

Every village obtains a score base upon its population size

1	=	< 500 persons
2	=	500 -700
3	=	701 -900
4	=	> 900

R2: Type of access from village to the core road network

This factor describes the type of road that connects the village to the core road network, this can be a rural road, an ox-cart track, a foot path or a waterway.

Four classes are made:

1	=	All weather road
2	=	Dry season only road
3	=	ox-cart track/foot path
4	=	Waterway

Every village obtains a score based upon this classification

R3: Transport Capacity Indicator

The transport capacity of a village is expressed in Passenger Bicycle Unit (PBU). Of a village all means of transport are converted to the capacity off a bicycle using the following table:

Transport capacity koyon	=	10 people	=	5
Transport capacity motor Trailer	=	10 people	=	5
Transport capacity motorcycle	=	3 people	=	1.5
Transport capacity bicycle	=	2 people	=	1
Transport capacity boat	=	4 people	=	2

The PBU is calculated by summing up all means of transport multiplied by its transport capacity divided by the total village population:

$$PBU = \frac{\text{Total Village Population}}{(\# \text{ koyon} * 5) + (\# \text{ mototrailer} * 5) + (\# \text{ motorcycle} * 1.5) + (\# \text{ bicycle} * 1) + (\# \text{ boat} * 2)}$$

Four classes are made

1	=	<6
2	=	6 -10
3	=	10- 20
4	=	>20

Every village will obtain a score based upon this classification.

R4: STT to the nearest all weather road

For the STT the travel time in the wet season from a village to the nearest all weather road is taken. An all weather road is defined as a road that is accessible in both wet and dry season.

Four classes are made:

1	=	< 30 minutes
2	=	30 -60 minutes
3	=	61 -90 minutes
4	=	> 90 minutes

Every village will obtain a score based upon this classification.

R5: STC to the nearest all weather road

For this purpose the price of hiring a motodup in the wet season to reach the nearest all weather road is taken.

Four classes are made:

1	=	< 1, 000 Riel
2	=	1,000 -2,500 Riel
3	=	2,501 - 5,000 Riel
4	=	> 5,000 Riel

Every village will obtain a score based upon this classification.

R6: Standard travel time to the district centre

Also the STT to the district centre is an element in this indicator.

Four classes are made :

1	=	< 45 minutes
2	=	45 -90 minutes
3	=	91 -150 minutes
4	=	> 150 minutes

Every village will obtain a score based upon this classification.

R7: STC to the district center

For this purpose we take the price of hiring a motodup in the wet season to reach the district centre.

Four classes are made:

1	=	< 1, 500 Riel
2	=	1,500 -3,000 Riel
3	=	3,001 -7,000 Riel
4	=	> 7,000 Riel

Every village will obtain a score based upon this classification.

R8: Availability of transport service from village

This factor describes the availability of transport service to and from the village during both dry and wet season.

Four classes are made:

1	=	Both seasons
2	=	Only one season
4	=	No service at all.

Every village will obtain a score based upon this classification.

R9: Employment opportunity of the villagers

This factor describes the availability of employment inside and outside of the village. Employment is classified into three categories: **primary, secondary and tertiary**.

Primary employment	Agriculture farmers	(Code=10)
	Animal husbandry	(Code=11)
	Fisherman	(Code=12)
	Collector	(Code=13)
	Firewood seller	(Code=14)
Secondary Employment:	Manufacturer	(Code=20)
	Construction worker	(Code=21)
	Rice mill	(Code=22)
Tertiary employment:	Shop	(Code=30)
	Services (Skilled)	(Code=31)
	Transport services	(Code=32)

The employment opportunity is calculated by dividing the sum of households in the secondary or tertiary employment class by the total number of households in the village:

Employment opportunity =

$$\frac{(\# \text{secondary employment households} + \# \text{tertiary employment households} * 100)}{\text{Total \# of households in the village}}$$

Four classes are made:

1	=	< 15%
2	=	15% to 30 %
3	=	31% to 40 %
4	=	> = 40%

Every village will obtain a score based upon this classification.

These nine factors are combined into one value to obtain the accessibility indicator.

Weighing

However not every factor is of equal importance. To be able to express this relative importance a weight is assigned to each factor, ranging from 1 to 9; the most important indicator gets 9, the next 8, etc. The weight is multiplied with the accessibility value to obtain the weighed value

Village size value	*	1	=	R1 weighed value
Type of access value	*	8	=	R2 weighed value
Transport capacity value	*	9	=	R3 weighed value
STT to all weather Road value	*	7	=	R4 weighed value
STC to all weather road value	*	5	=	R5 weighed value
STT to district centre value	*	6	=	R6 weighed value
STC to district centre value	*	4	=	R7 weighed value
Transport service availability value	*	3	=	R8 weighed value
Employment opportunity value	*	2	=	R9 weighed value

To calculate the accessibility score, all weighed values are summed and divided by the sum of weights, in this case 45:

$$\text{Accessibility score: } \frac{(R1 + R2 + R3 + R4 + R5 + R6 + R7 + R8 + R9 \text{ weighed values})}{45}$$

Every village will have a value between 1 and 4; the higher the value the poorer the accessibility to safe drinking water. These values are then grouped in four classes, each class having 25% of the villages.

Accessibility class 4	=	25 % of the villages with the highest scores
Accessibility class 3	=	25 % of the villages with the next highest scores
Accessibility class 2	=	25 % of the villages with the highest scores
Accessibility class 1	=	25 % of the villages with the lowest scores

The bigger the value of the Accessibility indicator the poorer the access to safe drinking water.

3.0 Integrated accessibility indicator (IAI):

Once we have calculated the sector accessibility indicators we are able to construct an overall accessibility indicator, which will tell us which villages have an overall bad accessibility, combining the all Accessibility Indicators (CAI) ie. DWAI, EAI, HCAI, RTAI, and MAI.

$$\text{CAI: } \frac{\text{DWAI} + \text{EAI} + \text{HCAI} + \text{RTAI} + \text{MAI}}{5} \text{ value}$$

Of course, not all sectors are of equal importance. This depends on the local situation and the travel time for all sectors. In order to include the travel time into the Integrated Accessibility Indicator (IAI) we will pick all related travel time from all the sector except drinking water to create an **weighted average travel time (WATT)**.

$$\text{WATT} = \frac{(\text{STT for E5} + \text{STT for HC3} + \text{STT for HC5} + \text{STT for HC7} + \text{STT for R4} + \text{STT for R6} + \text{STT for M2} + \text{STT for M4}) * \text{HH}}{\text{Total HH for the district}}$$

We can classify the above values into four priority classes:

1	=	>20	minutes
2	=	15 to 20	minutes
3	=	10 to 14	minutes
4	=	<10	minutes

This indicator will have a value between 1 and 4. A higher value means less accessibility of the village population to the market .

All the sectors that will tell us for every village which sector has a higher priority than another sector.

Now, find the arithmetic average for CAI and WATT to create integrated accessibility indicator by the following formula:

$$\text{Find arithmetic average} = \frac{(\text{CAI} + \text{WATT})}{2}$$

The average value shall be from 1 to 4 and classify as Integrated Accessibility Indicator (IAI) according to the following ranges:

$$\begin{aligned} \text{IAI 1} &= <2.2 \\ \text{IAI 2} &= 2.2 \text{ to } 2.8 \\ \text{IAI 3} &= 2.9 \text{ to } 3.1 \\ \text{IAI 4} &= >3.1 \end{aligned}$$

The XLS formula to be entered: =IF (S2>3.1,"4", IF (S2>2.8,"3", IF (S2>2.2,2,1)))
(Here 82 is the XIS cell number)

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

All villages in IAI 1 will be village with a bad accessibility situation in general and should be considered the first area of intervention for accessibility improvements.

4.0.0 How to calculate standard travel time:

Different modes of transport having different speed of travel in ideal condition e.g. walking, bicycle, motorcycle, car Moto-trailor and motorised/non-motorised boat. From the Origin and Destination survey we know that most popular means of transport that villagers use the bicycle, some of them use a motorcycle or walk and a small part uses a motor-trailer or sometimes a boat. To be able to compare the travel time per different mode of transport we have to convert all to modes of transport to the one most used, a bicycle.

Conversion table for STANDARD TRAVEL TIME

Travel mode code	Description of transport	Assumed speed of transport	Conversion factor
1	Walking	5 Km/hr	0.5
2	Bicycle	10 Km/hr	1.0
3	Motor cycle	20 Km/hr	2.0
4	Moto-trailor	10 Km/hr	1.0
5	Car	40 Km/hr	4.0
6	Motorised Boat	20 Km/hr	2.0
7	Non-motorised boat	5 Km/hr	0.5

If you have travel time by motor cycle is 30 minutes, then the equivalent travel time to bicycle as a **standard travel time** = $30 \times 0.5 = 15$ minutes

5.0.0 How to use the nested "IF" argument in XLS sheet:

IF

Returns one value if a condition you specify evaluates to TRUE and another value if it evaluates to FALSE.

Use IF to conduct conditional tests on values and formulas.

Syntax 1

IF(logical_test, value_if_true, value_if_false)

Logical_test is any value or expression that can be evaluated to TRUE or FALSE.

Value_if_true is the value that is returned if logical_test is TRUE. If logical_test is TRUE and value_if_true is omitted, TRUE is returned. Value_if_true can be another formula.

Value_if_false is the value that is returned if logical_test is FALSE. If logical_test is FALSE and value_if_false is omitted, FALSE is returned. Value_if_false can be another formula.

Remarks:

- Up to seven (7) IF functions can be nested as value_if_true and value_if_false arguments to construct more elaborate tests. See the following last example.
- When the value_if_true and value_if_false arguments are evaluated, IF returns the value returned by those statements.
- If any of the arguments to IF are arrays, every element of the array is evaluated when the IF statement is carried out. If some of the value_if_true and value_if_false arguments are action-taking functions, all of the actions are taken.

Examples

Priority 1, while the accessibility indicator values is > 1.90 .

Priority 2, while the accessibility indicator values is > 1.75 (Range is 1.76 to 1.90)

Priority 3, while the accessibility indicator values is > 1.60 (Range is 1.61 to 1.75)

Priority 4, while the accessibility indicator values is =< 1.60(Range is 0 to 1.60)

From the above ranges we shall create the formula to calculate:

=IF(AB4>1.9,1,IF(AB4>1.75,2,IF(AB4>1.6,3,4))

In the following example:

- If the value in cell AB4 is greater than 1.9, then logical_test is TRUE, and the total value shall be 1. Otherwise, logical_test is FALSE.
- Return for second nest to find cell AB4 is greater than 1.75, then logical_test is true and the value shall be 2. Otherwise, logical_test is FALSE
- Return for third nest to find cell AB4 is greater than 1.60, then logical_test is true and the value shall be 3. Otherwise, logical_test is FALSE, the value is 4.

Integrated Rural Accessibility Planning (IRAP) in Cambodia

North-western Rural Development Project (NRDP)



Introduction

In Cambodia, since 1992, the ILO has promoted labour-based appropriate technologies (LBAT) to generate employment through the improvement and maintenance of essential rural infrastructure. These technologies are "pro-poor" and effective weapons to combat poverty. The Royal Government of Cambodia (RGC) has endorsed LBAT as the technology of choice for the rural infrastructure program. One highly successful project, The Upstream Project operated from 1998 until 2003.

The IRAP planning tool was introduced to Cambodia in 1999 by the ILO Upstream Project. The tool was piloted in Siem Reap Province where the IRAP procedure has been applied in all districts of Siem Reap and in four of the eight Districts in Banteay Meanchey Province. The Ministry of Rural Development (MRD) has adopted IRAP as a standard planning tool and through its provincial and district offices, now intends to mainstream IRAP throughout the country.

North Western Rural Development Project (NRDP)

The Royal Government of Cambodia (RGC) is undertaking a project aiming to reduce poverty through accelerated rural development by establishing physical infrastructure, improving socioeconomic conditions and enhancing rural livelihood in north-western Cambodia: Battambang, Banteay Meanchey, Oddar Meanchey and Siem Reap for a period of 6 years; The North -Western Rural Development Project (NRDP).

The Ministry of Rural Development (MRD), the executing agency, has recently established a Rural Roads Department (RRD) that is reflected in the provincial and district levels. This department assumes responsibility for the planning and monitoring of rural road networks. The NRDP supports this initiative by contributing to the overall establishment (equipment, hardware, software and procedures) and training required for the institutionalization of IRAP within the MRD. It also supports provincial planning

activities of the PDRD in the identification and prioritizing of future investments to be funded under the NRDP. The technical assistance will support this activity in Phnom Penh and target provinces.

In order to carry out the project with regard to the IRAP component, and given the expertise of the ILO, the Technical Assistance (TA) will be provided by the ILO.

Integrated Rural Accessibility Planning (IRAP)

IRAP comprises a set of planning procedures that look at access, transport and mobility from a broader perspective. ILO in collaboration with different donors, development agencies and experts developed the concept of IRAP on the basis of experience in Africa and Asia during the 90s. IRAP has become a tool for rural infrastructure planning that is used by governments and development organizations alike. It promotes participation and the optimum use of local resources.

IRAP approaches the issue of poverty through the concept of accessibility. IRAP is based on the concept that the lack of access of rural people to goods and services is one of the fundamental constraints to development and that improving access is a necessary step towards poverty reduction.

The IRAP process identifies prioritized investments that maximize the impact to those most in need. This may involve the improvement of the road network or the improvement of the distribution and location of services. Providing the population with access to a

The planning activities involve a number of workshops where active consultation and participation take place. Local "experts" including District officials, representatives from different line departments, Commune Councils, Village leaders, teachers, health workers, traders, transporters, women's group representatives, etc. The selection of these participants attempts to reach a real cross-section of the community.

Objective and activities

The main objective of the IRAP project is to institutionalize IRAP in MRD and build capacity for application in the 4 provinces where the NRDP project will rehabilitate and maintain rural infrastructure.

With the mainstreaming of IRAP a planning tool is introduced that is implemented decentralized and is based upon active participation and consultation of the rural population in the decision making on the rural infrastructure investments, promoting democratization and transparency in decision making.

The six project components are:

1. Assist in establishing a mapping unit in the Rural Road Department (RRD) of MRD.
2. Assist the RRD to develop a works program for the mapping of all rural roads in the provinces, commencing in the project target area but expanding countrywide.
3. Provide technical support for the training of GIS operators and rural road planners in IR.AP techniques and procedures.
4. Provide technical support for the operations of the IRAP activities in the target province.
5. Assist the RRD to develop a maintenance works program based on the existing condition of rural roads in the target provinces, socio-economic (poverty) indicators and on the actual condition of the alignments.
6. Act as a resource for the introduction of IRAP planning processes within MRD

Accessibility Planning – Road prioritization

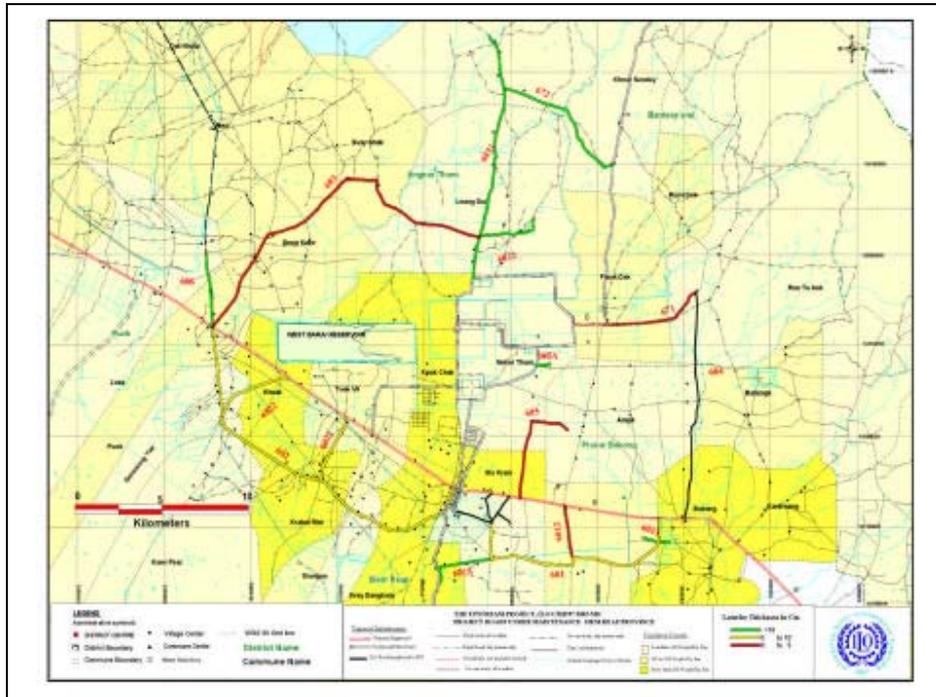
Road Prioritization and ranking: a first step
towards economic analysis

Third Regional IRAP Workshop
27 and 28 March 2003

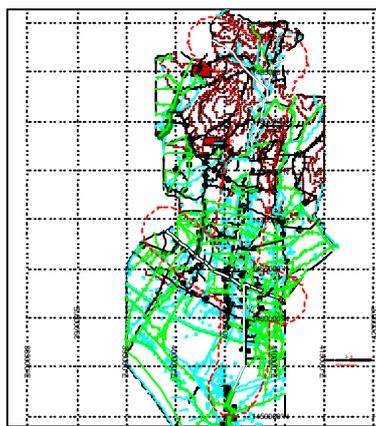
Doekle Wielinga
CTA NRDP-IRAP Component

Prioritization

1. Condition
2. Population served
3. Accessibility
4. Traffic

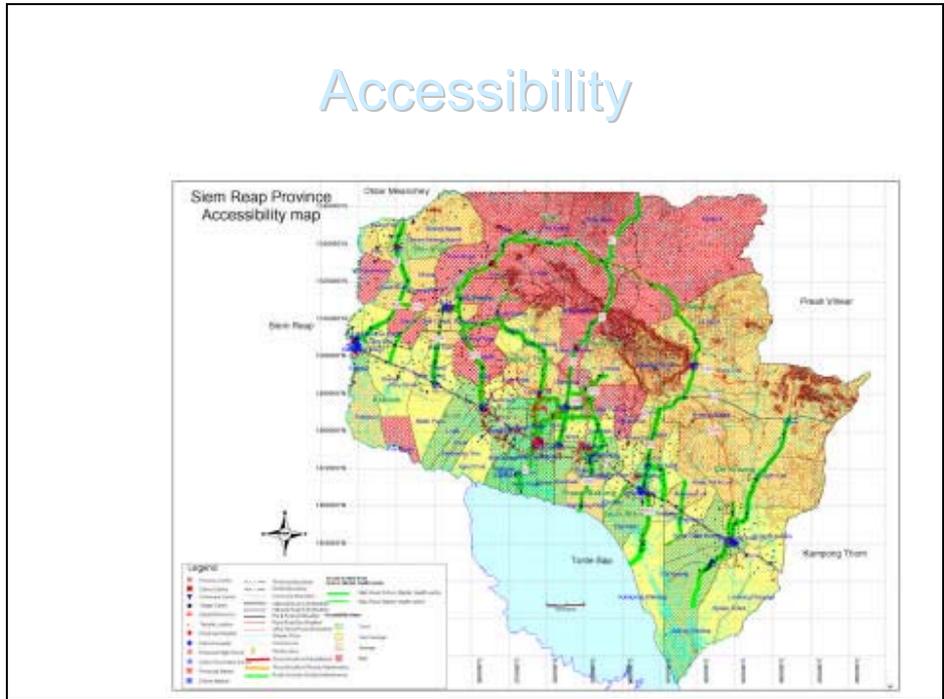


Population served

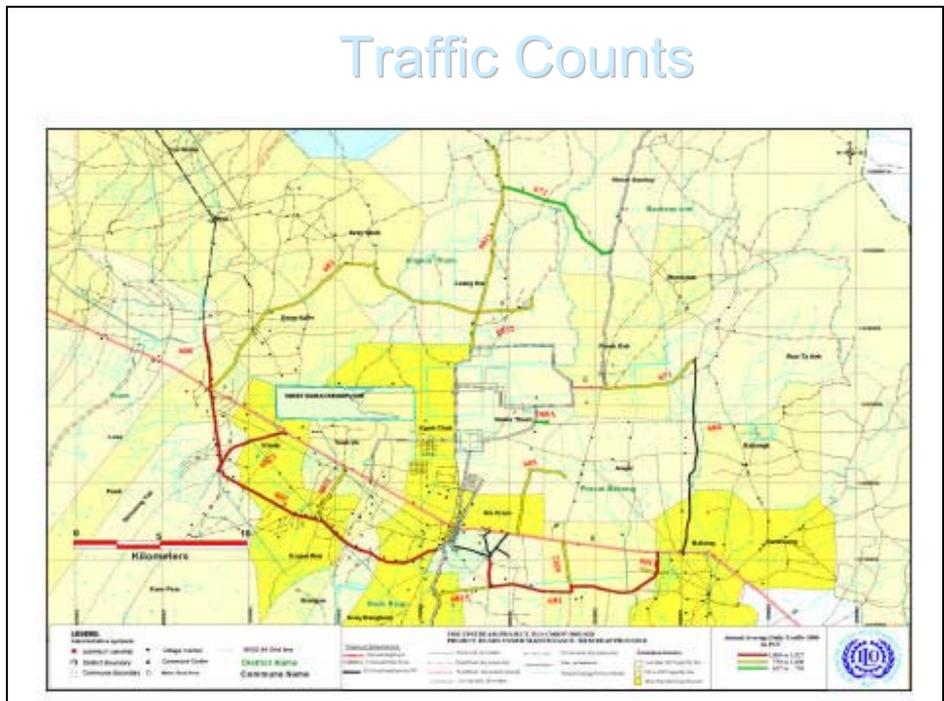


**2.5 km
Catchment
Area around
all roads in
maintainable
condition**

Accessibility

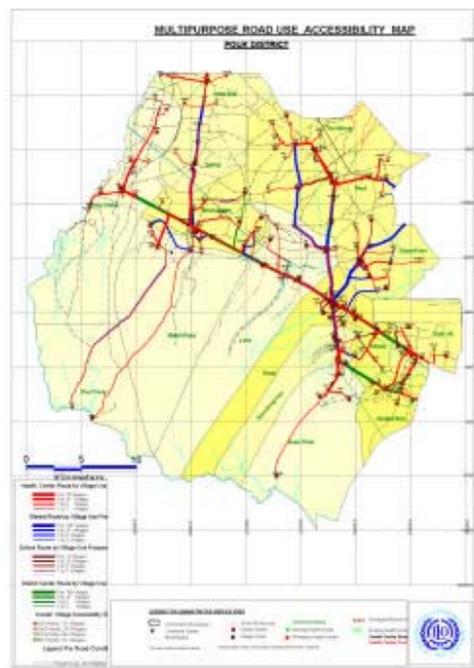


Traffic Counts



Travel Pattern:

Which route do villagers take to reach the nearest all weather road?



Location of Local Resources

- Stone
- Sand
- Laterite
- Clay

Surface Options



Ranking of the Roads

Cost Effectiveness Ratio (budget cycle)

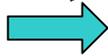
Traditional CER:

Cost/Population served

Proposed Cambodian CCER:

**Cost of rehabilitation per kilometre /
[1+ (unused land/km) + (facilities/km)+ (accessibility
ranking)] * [# of poor + 0.3* # of non-poor]}**

> X US \$ per Capita = acceptable



Ranking of the priority roads



Accessibility Planning – Data Gathering

Transport Infrastructure Inventory
and Asset Inventory:

Specific IRAP Data Gathering tools

Third Regional IRAP Workshop
27 and 28 March 2003

Doekle Wielinga
CTA NRDP-IRAP Component



Data Gathering

- IRAP coverage in Cambodia
- Transport Infrastructure Inventory
- Asset Inventory

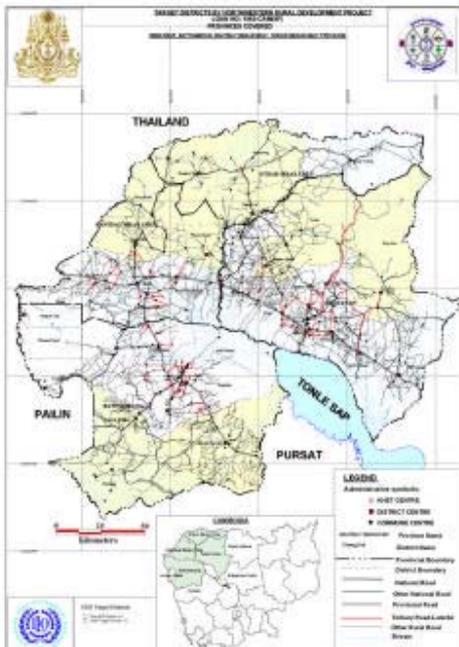
Optional:

- Prioritization and Ranking of roads

IRAP Cambodia



Integrated Rural Accessibility Planning



NRDP

North-Western Rural Development Project:

- Siem Reap
- Battambang
- Banteay Meanchey
- Oddar Meanchey

Cambodia Road Network

	Maintainable	Non Maintainable	Total	%NM/T
National Road	900	1,088	1,988	55%
National Road B	150	2,027	2,177	93%
Provincial	150	3,405	3,555	96%
Total	1,200	6,520	7,720	84%
Tertiary/Sub-tertiary	2,439	25,561	28,000	91%

Transport Infrastructure Inventory (TII)

Objective:

To verify and analyse the Rural Road Network as a basis for prioritization of rural roads for rehabilitation and maintenance

1. Simple
2. Participatory
3. Accurate
4. Effective

Field Verification: Workshops



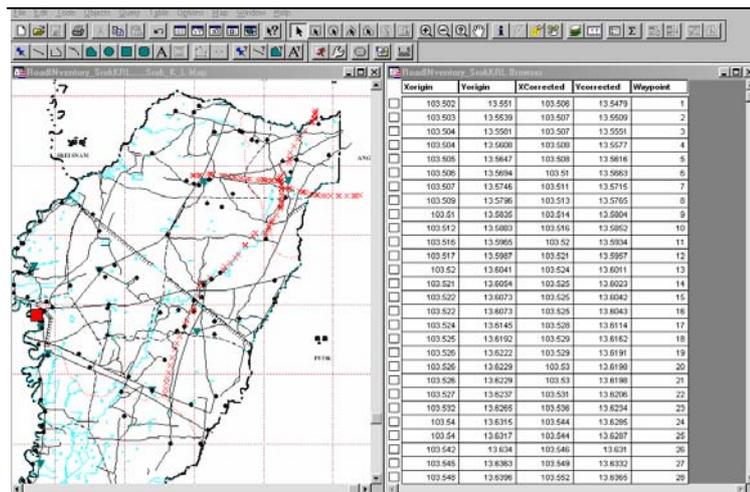
Field Verification: GPS readings



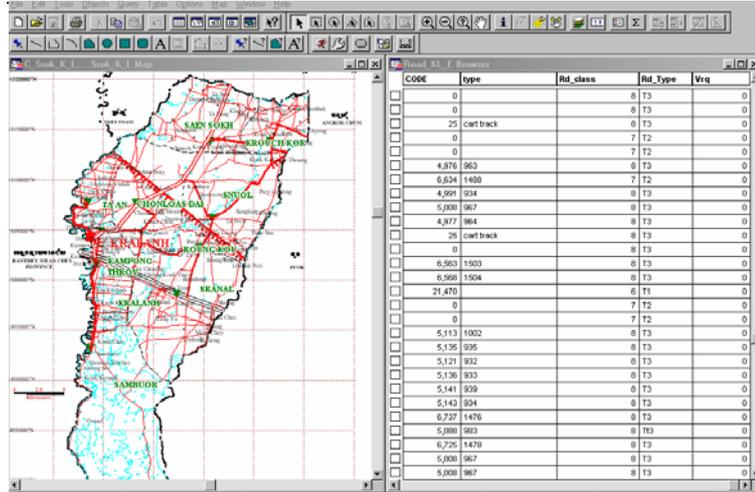
Importing co-ordinates into Excel sheet

Xorigin	Yorigin	XCorrected	Ycorrected	Waypoint
103.5024727	13.55096335	103.5062465	13.54789965	1
103.5028603	13.55393381	103.5066341	13.55087011	2
103.5035273	13.5581397	103.5073011	13.555076	3
103.5039779	13.56078587	103.5077517	13.55772217	4

Importing the co-ordinates into GIS

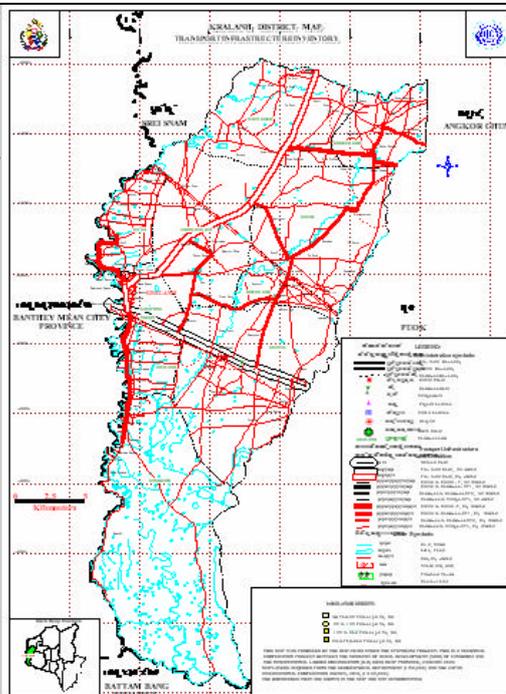


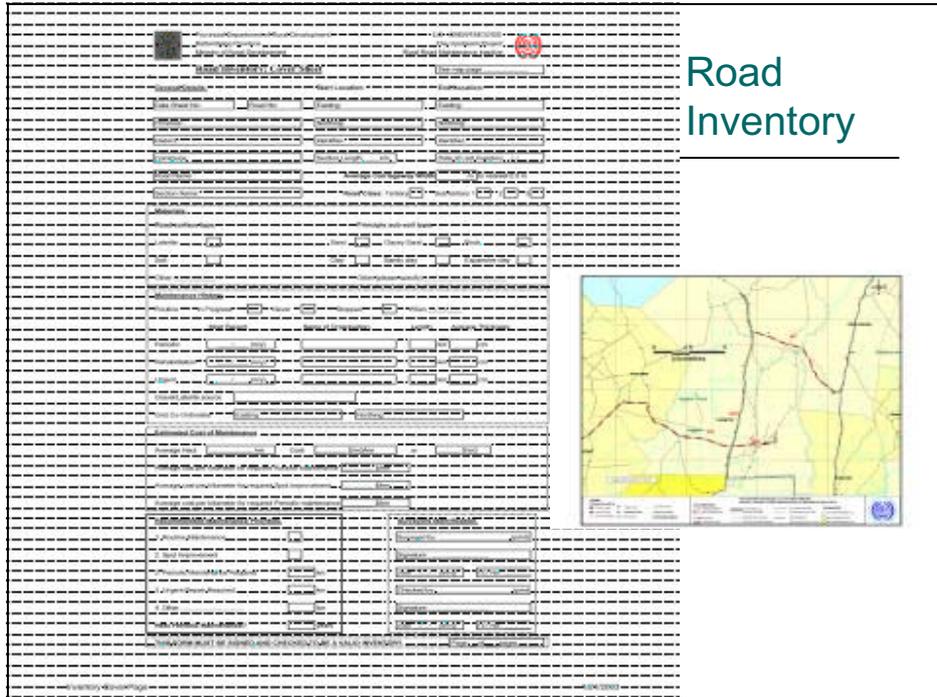
Road Classification



TII Map

Kralanh District





Road Inventory

Asset Inventory (AI)

Objective:

To verify and analyse the Rural Public Infrastructure as a basis for prioritization for rehabilitation and maintenance

1. Wells
2. Schools
3. Health Centres/Hospitals
4. Roads

Commune Name	Number of Village	Village asset per capita in			
		< 3.6	3.6 to 5.5	5.5 to 16.7	> 16.7
Char Chhrok	20	6	7	1	6
Daoum Pongng	8	2	4	2	0
Kouk Doung	15	2	3	3	7
Kout	7	1	0	6	0
Nokor Phnom	10	3	4	2	1
Srae Khvay	11	3	2	3	4
Ta Som	13	8	1	3	1
Total	94	21	21	21	21

Asset per capita	Communes
< 3 US \$	Kouk Doung, Kout and Char Chhrok
3 to 5 US \$	Srae Khvay
> 5 US \$	Ta Som, Daoum Pong and Nokor Phnom

Wealth Assesment:

Comparative wealth of:

Villages
Communes

Asset Map

Angkor Chum District





Additional Data Gathering

Accessibility Data Gathering (ADG):

- Travel Time
- Travel Cost
- Frequency
- Route



Conclusions

Start at the end

Second comes before first

Primary: look at the end again!

Participatory methods and “high tech” do go hand in hand

Quantify your data (cost; time, ...)

Stick to your method



Thank You!

ANNEX 8

Vietnam

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LOCAL RESOURCE BASED INFRASTRUCTURE PLANNING IN VIETNAM



STUDY CONDUCTED BY
ILO ASIST-AP & CERPAD IN 2001

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•
•

OBJECTIVES OF THE STUDY

- POSSIBILITY TO INTRODUCE ILO APPROACH AND SHARE ASIST-AP EXPERIENCE AND KNOWLEDGE IN INFRASTRUCTURE PLANNING AND EMPLOYMENT GENERATION IN VIETNAM

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•
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ACTIVITIES

- REVIEW PRESCRIBED PLANNING SYSTEM IN VIETNAM
- REVIEW CURRENT PLANNING PRACTICES IN VIETNAM IN RELATION TO RURAL INFRASTRUCTURE DEVELOPMENT
- FORMULATE A DRAFT I.R.A.A.P FOR 2 DISTRICT
- RECOMMEND FOR A POSSIBLE IRAP METHODOLOGY FOR VIETNAM AND IDENTIFY POSSIBLE ENTRY POINTS

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MINISTRIES INVOLVED IN RURAL INFRASTRUCTURE PLANNING AND DEVELOPMENT

- MPI
- MOC
- MOT
- MARD
- MOH
- MOET

•
•
•

DONORS ACTIVE IN RURAL INFRASTRUCTURE

DEVELOPMENT IN VIETNAM

- WORLD BANK
- ADB
- EU
- DFID
- DANIDA
- ...
- ACTION AID UK
- OXFAM
- SAFE CHILDREN UK
- ...

•
•
•

FIELD VISIT TO 6 PROVINCES

- VINH PHUC, LAI CHAU IN THE NORTH
- HA TAY, NINH BINH IN RED RIVER DELTA
- HA TINH IN THE CENTRAL COASTLINE
- VINH LONG IN MEKONG RIVER DELTA

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•
•

POLICIES TO EMPOWER AND ENCOURAGE PEOPLE PARTICIPATION

- DECREE ON DEMOCRATIZATION AT LOCAL LEVELS
 - PRINCIPLE OF STATE AND PEOPLE WORK TOGETHER FOR DEVELOPMENT
- • • • • • • •

•
•
•

WORKSHOPS INTRODUCING IRAP AT TWO DISTRICTS

- REPRESENTATIVES OF ALL COMMUNES IN THE DISTRICT
 - DISTRICT LEADERS AND TECHNICAL STAFF
 - PROVINCE REPRESENTATIVES FROM PPC, DPI, DOC, DARD
- • • • • • • •

•
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WORKSHOP ACTIVITIES

- INTRODUCTION OF IRAP AS A TOOL FOR PLANNING
- DELIVERY AND EXPLANATION OF QUESTIONNAIRES FOR DATA COLLECTION
- FACILITATE PARTICIPANTS TO PARTICIPATE IN DOING EXERCISE USING IRAP TOOLS

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EXERCISE ON IRAP TOOLS

- COLLECT BASIC DATA WITH A SIMPLE QUESTIONNAIRE
- MAPPING
- CALCULATE INTEGRATED ACCESSIBILITY INDICATORS
- IDENTIFY AND PRIORITY INFRASTRUCTURE INTERVENTION TO IMPROVE ACCESS

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CONCLUSION FROM THE WORKSHOP

- PARTICIPANTS VERY IMPRESSED WITH IRAP
 - THEY FOUND IT SIMPLE, INTUITIVE BUT CLEAR AND EFFECTIVE AND EASY TO USE
 - THEY CONSIDER IRAP AN EFFECTIVE TOOL TO FACILITATE PEOPLE PARTICIPATION IN RURAL INFRASTRUCTURE PLANNING AND DEVELOPMENT
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ISSUES IDENTIFIED FROM THE STUDY

- LIMITED CAPACITY AT DISTRICT AND COMMUNE LEVEL
 - LIMITED RESOURCE AVAILABLE FROM STATE BUDGET
 - UNCERTAIN TENURE OF OFFICE OF COMMUNE TECHNICAL STAFF
 - PAYMENT FOR SMALL INFRASTRUCTURE CONTRACT
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CONCLUSION & RECOMMENDATIONS

- FAVORABLE ENVIRONMENTS ESTABLISHED FOR EMPOWERMENT AND COMMUNITY PARTICIPATION WHICH IS GOOD OPPORTUNITY TO INTRODUCE IRAP INTO VIETNAM
- THE METHOD SHOULD BE SHARED WITH ON-GOING INFRASTRUCTURE ACTIVITIES FUNDED BY VARIOUS DONORS

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ANNEX 9

Nepal

Adaptation of IRAP in local-level planning system: Nepal

Ganesh K. Ghimire, ILO ASIST AP
Jagannath Ojha, DoLIDAR

IRAP PILOTING IN NEPAL

IRAP as a tool for local-level planning that -

- uses accessibility constraints as the main basis for identifying projects,
- adopts participatory method and follows bottom-up process,
- integrates transport and non-transport interventions for resolving accessibility problems,
- gives rise to real need-based projects for investment,
- harmonises with (and strengthens to) the existing local-level planning system, if one exists already.

With a view to adapt IRAP in the existing system of local-level development planning in Nepal an effort was made during 2002 to pilot it in four districts of Nepal. It was aimed to learn from the piloting exercise and develop Nepal specific IRAP documents like Guidelines, Manual and Training Modules.

ILO ASIST AP collaborated with DoLIDAR, MoLD, HMG in this context to provide technical know-how and necessary support for undertaking piloting exercise. Nepal specific provisional Guidelines / Manual were prepared and trainings were designed. Four districts namely Dhading, Myagdi, Nawalparasi and Makwanpur were selected to represent the different ecological situation of the country. The District Development Committees and their officials from these districts were provided with training and other support for undertaking the IRAP exercise. DoLIDAR being the concerned and relevant technical government department the ASIST input for the piloting exercise went to the districts through it.

IRAP was applied as a tool in selected Village Development Committees of the four districts and the plans have been prepared. Learning from the experience of the exercise draft Guidelines, Manual and Training Modules applicable to the whole country have been developed.

LOCAL-LEVEL PLANNING SYSTEM IN NEPAL

The geographical area of the country covers the middle third of the Himalayan range and its foothill. It is landlocked from three sides—east, south and west—by India and by Tibetan autonomous region of China from north. Out of the total area of 147,181 square kilometre of the country more than 80 % is covered by hills and mountains. About 85 % of the 23 million people live in rural areas where agrarian subsistence economy is the way of life. Nepal has one of the lowest per capita incomes of US \$ 240 in the world with about 40 % of the population living below a dollar per day of income. Poverty in the rural areas, in the hills or in the plains, is more prominent and severe. Livelihood condition for the majority of the rural population is extremely hard and precarious. Though overwhelming majority of the population is engaged in agriculture this sector contributes to only about 40% of the country's gross domestic product.

The country has a political system of constitutional monarchy with multiparty parliamentary democracy. Largest elected party in the House of Representatives, which is also the lower house of the parliament, forms the government and runs the state machinery. As parts of the state machinery, the sectoral ministries and various agencies under them as well as the National Planning Commission work together to plan and implement the development process of the country. Administratively the country is divided in five development regions, seventy five districts, 58 Municipalities and 3912 village development committees (VDC). District Development Committees at the district level and Village Development Committees or Municipalities at the village or urban area level are the locally elected bodies of local authorities. Most of the central government agencies are represented at the district level, therefore, from administrative as well as local development standpoint the district is the important unit of institutional convergence from both sides top and bottom.

The country is divided into five development regions and 75 districts. The districts are further divided into Villages and Municipalities for rural and urban areas simultaneously on the basis of inhabitant population in the area. There are 3,912 Village Development Committees and 58 Municipalities. Generally, a rural area with 2,000 or more is classified as one VDC and similarly an urban or semi-urban area with 20,000 or more population is classified as Municipality. The VDCs and Municipalities are further divided into settlements or wards. In VDCs there are 9 wards and the Municipalities may have 9 or more wards.

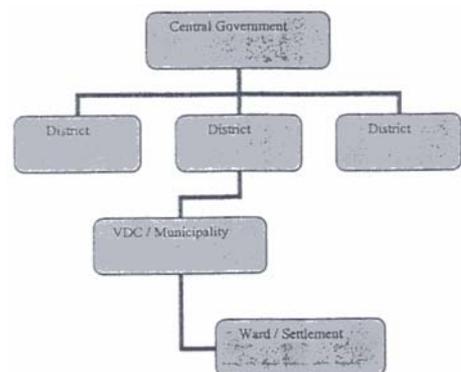


So the hierarchy of local governance is such that

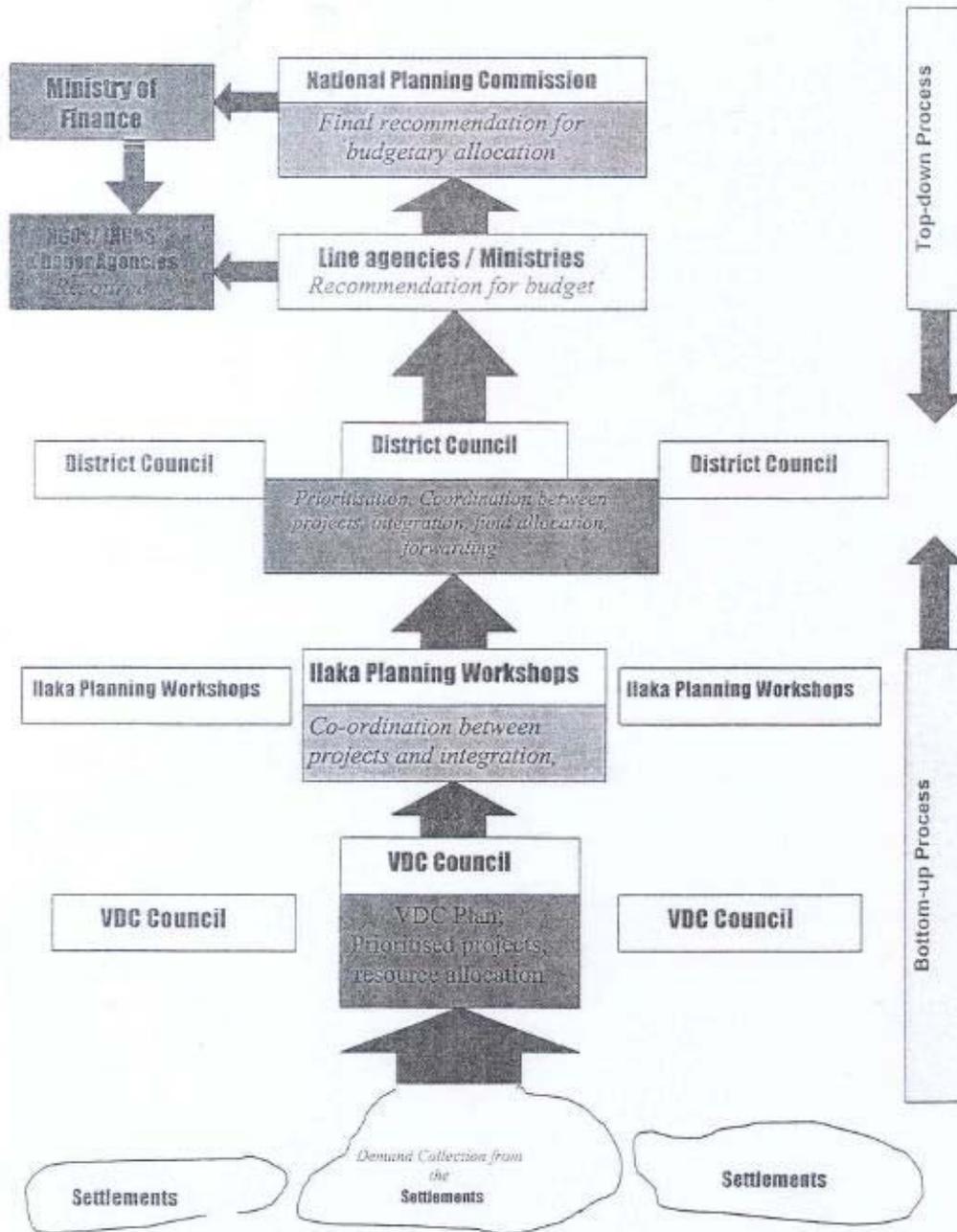
the basic unit of the area organisation is Settlement / Ward with an upward structure to VDC / Municipality to District and Central government.

The central government is formed out of the cabinet of ministers from the elected legislative body at the top. The government is organised with a structure of line ministries and departments going further down to districts and VDCs / Municipalities with their activities and provision of different services. System of development planning and investment allocation for it is very much based on the top-down and bottom-up processes within this structure. The following schematic diagram shows these processes highlighting the existing local level planning system in the country.

Area organisation hierarchy



Local-level Planning System in Nepal



SECTORAL ORGANISATIONS AND SERVICE STANDARDS

Development in rural areas is about providing resources, services, and opportunities that the rural people need. Basic principle of IRAP is to focus on improving access of the people to these resources, services and opportunities by integrating transport and non-transport interventions as appropriate. For meeting the basic needs like education, health, drinking water, communication, access to market and various resources different sectors are organised in a particular way in every specific country. Often there is also some kind of standards or target levels fixed through policies for these services to be provided. In Nepal's rural context Health, Education, Drinking Water, Communication, Rural Transport, Access to natural resources are the relevant ones. In the context of providing these services different line agencies are organised for the provision of these services.

SECTORAL ORGANISATION

In the context of providing basic services to the people the government system is organised into sectors as line agencies. The line agencies are involved in actually providing the services as well as in regulating the private sector playing one or the other role in providing the services. In some areas of services private sector has been playing increasingly significant role, education for example, whereas in others the public sector does have its predominant roles.

Ministry of Health with its departments and central programmes represents the health sector organisation of the government. Under the ministry there is an organisational structure comprising of district offices, hospitals, health-posts and sub-health posts working for providing health services and regulating private sector's role in conjunction. There are health personnel from this structure all the way down to Ward or settlement level.

Education is another important sector with its own organisational structure from Ministry of Education down to District Education Office to local schools. Private sector plays an important role in providing various services including private schools and marketing of education materials in providing education services in the rural areas.

For the provision of drinking water in the rural areas the sector is organised within Ministry of Physical Planning and Works. The Department of Water Supply and Sewerage has its Divisional and Sub-divisional offices covering almost all the districts of the country. Projects from NGOs and local authorities also play significantly important role in providing services in rural water supply.

Rural Transport is a sub-sector in itself and organisation of which is multi-faceted. This sub-sector mainly comprises of rural roads, trails, bridges and transport services. Department of Roads under Ministry of Physical Planning and Works is responsible for all the strategic road networks (SRN) comprising of highways and feeder roads. Rural roads are responsibility of local authorities, DDCs and VDCs in particular and DoLIDAR under Ministry of Local Development is to provide technical support in their development and management. Responsibility of trails and suspension bridges lies with local authorities and with central level agencies and projects like Suspension Bridge Division and Local Development Construction Project under MoLD.

Access to forest resources is very important for the livelihood of the rural people. Forest management has two distinct areas. One is through the central government line agency under Ministry of Forest and Soil Conservation with its Departments and district offices. The other is that of community managed forests.

Being isolated and in constraints to communicate with outside world is one of the main problems in rural Nepal. Communications is therefore an important sector in the context of improving accessibility of the rural people. For the provision of various communication services in the rural areas the central government line agency as well as the private sector plays crucial roles. Under the Ministry of Communications a hierarchical

network of posts and telephone system work. Besides, Radio Nepal and Nepal Television both under this ministry are main source of information in the rural areas.

SERVICE STANDARDS AND POLICY TARGETS

Usually there are prevailing standards governing the provision of various services in the rural areas. Application of these standards is sometimes policy objective and at other times it is matter concerning quality of the service. For example, allocation of at least one Volunteer Women Health Worker at each ward level is a policy standard of the government. Similarly, all the settlements within a district (Bhojpur for example) will be within half a day's walk from the roadhead is a policy target of the district. Such service standards and policy targets of the sectoral agencies or the central government's periodic plan or policy target or the district authority are there in almost all the sectors / sub-sectors. The following table lists some of the service standards and policy targets in some sectors / sub-sectors as examples.

Sector	Service Standards & Policy Targets	Sources of Standards
Health	Minimum one sub health post at VDC Level (Policy of establishing One district hospital at district level, one Health centre at electoral constituency level, one health post at Ilaka level and one sub health post at VDC level)	Ninth Plan
	At least one Volunteer Women Health Worker at ward level	Tenth Plan
	Door to door vaccination service	Tenth Plan
	Less than one hours or two kilometre walk to reach the medical facility	
Education	90 Percent primary enrolments of children at age of 6-10 years.	Tenth plan
	Special consideration to scheduled class and deprive group of people	Not any objective tools to measure
	Primary School will be established if the demand is need based	need based Basic need policy 1983
	Less than two hours walk Service to 20 students in primary level	Education policy 1986
Drinking water	85% people will get piped water during tenth plan	Tenth Plan
	Priority will given according to hardship	
Forestry	Community forestry will raised	Tenth Plan
Communication	At least one telephone line in each VDC	Tenth plan Ninth plan
	One post office in one VDC	
	Promote email, internet in secondary school	
Road network (Access to Market)	District Transport Master Plan (DTMP) a must for investment on the rural road	DoLIDAR; the World Bank; ADB
	Nearest roadhead within a distance of fixed walking time	

ADAPTING IRAP AS A PLANNING TOOL

There is a prevailing practice of local level planning in the country where DDCs, VDCs and the wards (settlements) are involved in a participatory manner. PDDP / LGP have helped some 61 districts to establish and practice such participatory process of regular planning at the local level. Under this prevailing practice of local-level planning what is essentially done is collection of demands for projects. Usually the projects are that of infrastructure. Such local-level planning practice is also made mandatory by Local Self Governance Act (LSGA) 1999. The following table summarises the 14 step planning process.

Participatory Planning Process at the local level (PDDP/LGP)

Steps	Theme	Activity	Who / When
Primary	Information	Data analysis and preparation of resource map	DDC information centre
Step 1	Guideline	Fix budget Ceiling	NPC/middle of November
Step 2	Revision of guideline	Revision of guideline and budget ceiling	DDC / Third week of November
Step 3	Planning Workshop	Discussion of plan priority and budget with DDC member and line agency heads	DDC/ End of November
Step 4	VDC meeting	Discussion of possible priority sector and programme / projects at ward and settlement level	VDC/ Third week of December
Step 5	Selection of Projects	Discussion of felt need of community, prioritise projects and fill-up of demand collection	Community/ Third week of December
Step 6	Ward Meeting	Compilation of community demand, prioritisation and recommendation for VDC	Ward meeting/ Last week of December
Step 7	VDC Meeting	Compilation of ward level projects, Resource estimation, Prioritisation, Classification of projects according to resource, which is implemented through VDC, and have to recommend for district level.	VDC/January first week
Step 8	VDC Council Meeting	Prioritisation and approval of programmes for implementation and recommendation of the projects that have to implemented through district	VDC Council/ Second week of January
Step 9	Ilaka Level Planning Workshop	Compilation and Prioritisation and Recommendation of projects received through VDC Council	Coordinated by Ilaka Member / First week of February
Step 10	Sectoral Planning Meeting	Classification of projects recommended from Ilaka level, Prioritisation and recommendation for process	Sectoral Committee of DDC/ Third week of February
Step 11	Integrated Planning Formulation	Inclusion, Exclusion and revision of priority of the projects on recommendation of Sectoral Planning Committee	Integrated Planning Committee of DDC/ End of February
Step 12	DDC Meeting	Compilation and analysis of projects from Sectoral committees and appraisal of compiled projects i.e. environmental, economic and social , Prioritisation of projects, classification of projects according to resource i.e. implementation through own resource or requires central level resources through sectoral ministry.	DDC / First week of March
Step 13	DDC Council	Approval of programmes and policies of district	Second week of March
Step 14	Implementation	Presents the approved programmes to the central agencies. Implementation of programmes after approval of central agencies.	Fourth Week of march After approval generally at end of July.

Keeping this local-level planning practice and the concerned agencies in view piloting of IRAP was specially designed. The following are the key features of piloting exercise:

- to be implemented under District Development Committee (DDC) umbrella so that DDC owns the process;
- concerned officials of the DDCs and VDCs to be involved as the facilitators / planners;
- quality aspects of the services / facilities (for which access is to be improved) taken into account in assessing accessibility indices;
- offering complete system for investment requirement (T1: Information Collection and Mapping; T2: Analysis, Intervention identification and Prioritisation; T3: Project Preparation);
- technical assistance for implementation provided (by ASIST) through DoLillar, the only government technical agency present in all the district;
- capacity building through training and hands-on technical assistance;
- collaboration with other ongoing planning support projects or activities; outcomes to be compatible with the evolving system;

The piloting exercise has just come to an end. The Nepali version of IRAP documents like Guidelines, Manual and Training Modules are ready for going to printing. By using these documents IRAP can be integrated as a tool into the local-level planning system across the country.

USE OF TIME SLAB AND STANDARDS IN IRAP

In IRAP process the degree of prevailing access problems is the basis on which interventions are identified and prioritised. And the real access of the rural people to any service, resource or opportunity depends not only on physical access infrastructure and mobility but also on the quality aspect of the intended service facility. Therefore, quality aspect of the service facility has been accounted for in deriving Accessibility Index, which is the measure of the access problems. The following formula has been used to calculate the AI:

$$\text{Accessibility Index} = \text{HH} * \{\text{Weighted Travel Time} + \text{Weighted Quality Factor}\}$$

HH is number of households in the settlement.

Weighted Travel Time is composed of travel time in *Slab* multiplied by *difficulty factor*. Measuring time in Slabs of 1, 2, 3, instead of actual time units like hours, minutes, seconds is proposed in juxtaposition with the service standards or policy targets in the concerned sector. Difficulty factor is the measure of the quality of physical access. Combining these two give weighted access time.

Weighted Quality Factor takes into account of quality aspect of the service facility. As access of the people to any service depends also on quality aspect of the service facility it is included in the measure of access constraint. Quality aspect of the service facility may be judged from the *physical condition of the service facility* as well as *management of service provision*. For both of these facades of quality aspect different grades have been proposed.

In deriving AI whether or not to take account of number of households has become an issue of debate. AI being the measure of access difficulty the priority of identified project depends on its absolute value. If number of households are taken into account then it directly affects the absolute value of AI and consequently larger the settlement higher the priority it gets for intervention. This would result into a situation of undue bias against the smaller settlements. Therefore, one argument is that considering IRAP as an area planning tool consider the settlement as a whole and ignore the number of household in deriving AI. In this argument the number of households is taken into account only while deriving the average travel time. However, the other argument considers that accessibility planning is about saving total amount of time, the time that the individual households spend in accessing one or the other service facility. Therefore, AI should reflect the total time that needs to be invested for accessing one or the other service facility. For this, in deriving AI, it is necessary to multiply the average travel time by number of households.



Piloting IRAP in Nepal

*Integrated Rural Accessibility
Planning*



IRAP a local-level planning tool that....

- uses accessibility constraints as the basis ...
- adopts participatory method and follows bottom-up process
- integrates transport and non-transport interventions...
- gives rise to real need-based projects for investment
- harmonizes with and strengthens to existing local-level planning system.



IRAP Piloting in Nepal

- MOU with DoLIDAR
- Piloting approach designed, district selected
- DDC themselves involved in implementing the piloting exercise
- ILO ASIST provided Technical Assistance through DoLIDAR
- Piloting completed in 4 districts, ready with Nepali version of documents



Nepalese Context



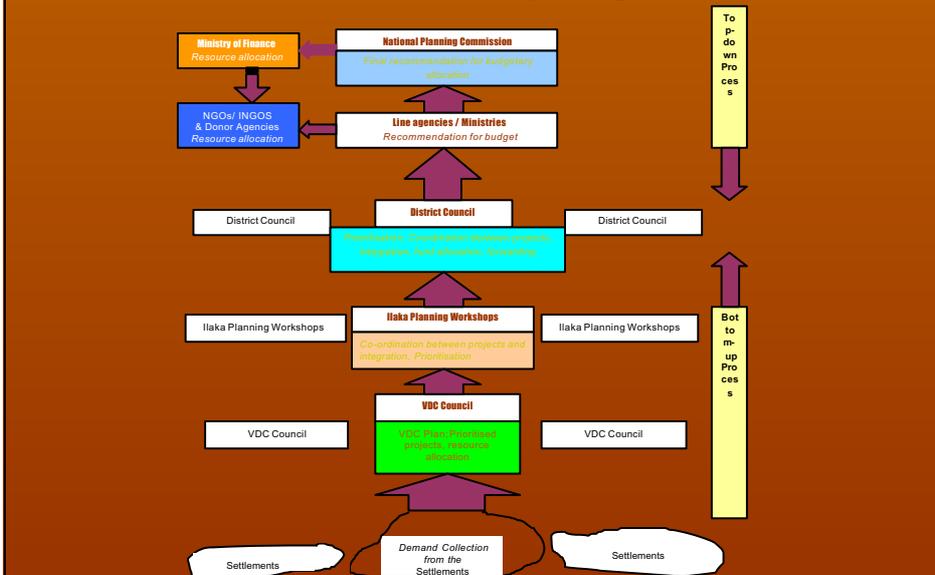


Nepalese Context.....

- Location, geography, demography, political system
- Area Organisation hierarchy



Local-level Planning in Nepal





Key feature / Objective of piloting IRAP in Nepal

- Strengthen bottom-up planning process
- Devise Nepal-suited technicality: *Demand Collection Form*, *Time Slab* and *Quality Aspects* of the service facility in AI
- Integrate this tool with the existing planning system
- Develop guidelines, manual and training modules
- Technical Capacity Building
- Collaboration with other planning exercise and compatibility with evolving system
- Offering complete planning system for investment requirement – T1, T2 and T3



Some lessons learnt

- IRAP generated projects: Small-scale, participatory (need-based), labour-based technology, employment enhancing...
- The tool is effective, workable and appreciated....
- Presence of elected officials at the local authorities crucial for effective local level planning
- Building upon what exists: PDDP, LGP LGSP
- The DDCs need training back-up for wider use of IRAP
- Conflict situation hinders bottom-up planning process



Piloting IRAP in Nepal

Integrated Rural Accessibility Planning

Jagannath Ojha



Technicalities of Adaptation

- Demand Collection Form
- Time Slab
- Quality Aspects of service facility
- Accounting HH numbers in AI



Technicalities of Adaptation

$$\text{Accessibility Index} = \text{HH} * \{\text{WTT} + \text{WQF}\}$$

Weighted Travel Time = Slab Access Time * Difficulty Factor

Weighted Quality Factor = Physical Condition of the service facility (in grades) + Management of Service Provision (in grades)



Demand Collection Form

Village Development and Self-help Programme Project proposal format

Annex - 1

1. Project Name: _____ District _____
2. Place of the project: _____ VDC _____
Ward No.: _____
3. Type of the project: New / Incomplete / Maintenance
4. Project benefits (physical):
 - a) Number of beneficiary families: _____ Population: _____
 - b) Beneficiary hectare (irrigation): _____
 - c) Others: Beneficiary Kilometre (road): _____
5. Total cost estimate Rs.: _____
6. Necessary resources for the project and the share to be borne by the implementing agency:

S. N.	Resources	Total Amount	Amount to be borne by implementing agency	Amount to be borne by the community or the beneficiary
1	Construction Material			
	a			
	b			
	c			
	d			
2	Transport			
3	Wage for skilled labour			
4	Wage for unskilled labour			
5	Others			
	Total			

Note: The amount to be borne by the implementing agency and the community both should be committed.

7. Project starting date: _____ Project completion date: _____
8. Arrangement for operation and maintenance of the project.
9. Name list of Users Committee members:
10. Anything else:
11. The above mentioned descriptions are correct.

Signatory on behalf of the applicant
 Name: _____
 Signature: _____
 Date: _____

Note: 1. Names of the beneficiaries should be attached.
 2. Detailed description of the project may be attached.



Time Slab

- Service Standards and Policy Targets
- Different Slabs of time count



Quality Aspect of Service Facility

Difficulty Factor in Physical Access
Physical Condition of the Service Facility
Management of Service Provision

Example

- Education Sector

WTT= 1 or 1.1 * (time slab=1,2 or 3)

WQA= {0.5*(physical condition=1,2 or 3)+0.5*(management=1,2 or 3)}

AI= HH* {0.6*WTT+0.4*WQA}



Accounting HH numbers in AI an issue for discussion

- HH number as multiplication factor to AI = Total Access Time is accounted, bias against smaller settlements
- Area / Settlement as the unit of planning = IRAP as an Area Planning Tool

ANNEX 10

Philippines



Integrated Rural Accessibility Planning

IRAP Prioritization Procedure viz-a-viz Irrigation Prioritization Procedure by NIA (National Irrigation Administration)

Martha Mildred D. Espano

IRAP Philippines

IRAP Prioritization Procedure and the NIA Prioritization for Communal Irrigation Development*

1.0 Background

The presentation is on two project prioritization schemes, the IRAP procedure for access improvement of basic services and facilities, and NIA (National Irrigation Administration) procedure for communal irrigation development. The ILO-ASIST AP collaborates with ADB (Asian Development bank) to provide technical inputs, particularly using alternative technologies like IRAP, LBES and SCS, to a government project under the DA (Department of Agriculture) called "Infrastructure for Rural Productivity Enhancement Sector (InfRES) Project. Among the 3 priority sectors of InfRES such as access infrastructure, water supply and communal irrigation, the later was selected as the technical topic for the reasons; i) attempt to look at the potentials of IRAP model in the irrigation sector which, for the Philippine experience, was not covered during the implementation of the various phases of the IRAP Project; and ii) encourage further discussion on the issue. Irrigation is among the major concerns in agricultural rural areas almost everywhere. Access to basic services, goods and facilities extends to the provision of irrigation facilities which undoubtedly contributes to increased farm production output. During the last IRAP regional workshop in Sept. 2000, no clear consensus was reached whether to include irrigation in the planning activities as technically it seems difficult to use the IRAP model for small irrigation facilities. The Philippines through the InfRES Project will take the effort to identify the technical feasibility and usefulness of the IRAP model in the context of improving access to communal irrigation facilities.

The presentation is in two parts; 1) evolution/overview of the IRAP application in the country; and 2) technical discourse of the topic at hand. Part 1 will contextualize the technical work of ASIST AP in the InfRES Project; Part 2 discusses the two prioritization procedures in the light of utilizing these in the InfRES Project.

2.0 IRAP application in the Philippines: An overview

Research work on rural transport, initiated by the ILO in the early 1980s, has brought together a book "Rural Transport in Developing Countries" published in 1985. The book marked a new approach to rural transport in general and induced a rural transport discipline "Integrated Rural Transport Planning".¹ IRTP features that i) the starting point of rural transport planning should be the real transport needs of the people; and ii) in identifying interventions to improve rural transport one should consider the development of the road network, improvement of the village level transport network & services, and increased use of intermediate mode of transport (IMT).¹

The results of the work done on rural transport in the early 1980s paved to a pilot activity in the Philippines and Malawi. The Philippines was selected to provide an Asian perspective while Malawi provided an African view. Although both pilot projects shared the same development goal to improve rural access, the two pilot areas differed in objectives and strategies. The Philippines emphasized on the development of a decentralized access planning model and build capacity for access planning at local level, while Malawi concentrated on developing and implementing interventions to improve rural transport.

** A paper presented at the 3rd IRAP Regional Workshop, 27-28 March 2003, Bangkok, Thailand... .Español.....Page Page 1 of 8*

The pilot activity influenced to review the objectives and scope of the project as focus was geared towards decentralized access planning model than rural transport concerns. This event prompted to change IRTP to IRAP (Integrated Rural Accessibility Planning), consequently such initiative gained wider interest and support of Government for it conformed with the new policy of decentralization and local autonomy. The change in policy direction paved the way to a wider application of the planning procedure in the country.

2.1 Phases of IRAP application

Since its inception in 1989 up to present, IRAP methodology, at varying levels of application, continues to be utilized in the country. The table below 1 illustrates the various phases of its application, coverage, institutional linkage and impact generated:

Phase		Objectives	Coverage	Institutional Base
1989-90	Research development	<ul style="list-style-type: none"> Develop a local level access planning procedure 	Aurora (region 4), Ifugao & Mt. Province (CAR)	Dept of Agriculture "Aurora Integrated Area Developed Programme" & Central Cordillera Agricultural Programme", both EU-funded, and worked directly with the Provincial Planning Development Offices (PPDOs)
1990-92	Pilot testing	<ul style="list-style-type: none"> Test the application of the developed procedure in selected areas 	4 provinces: Capiz (region 6), Agusan del Norte & Camiguin (region 10), and Romblon (region 4)	Project management transferred to the Department of the Interior & Local Government-Bureau of Local Government Development, created Rural Transport Unit. Funding from USAID
1992-94	Project Phase – selected application	<ul style="list-style-type: none"> Adoption of IRAP as a planning strategy Establish training capacity on IRAP Develop sustainable capacity to apply IRAP as a planning tool 	9 provinces in regions 6, 10 & 11	Based at the DILG-BLGD, worked directly with the PPDOs. Funding from the Dutch Government.
1995-99		<ul style="list-style-type: none"> Application in 4 regions LGUs to implement projects based on IRAP Develop capacity with the training arm of DILG (LGA) to provide technical assistance Develop training capacity at regional universities Operationalize a national IRAP databank 	15 provinces in regions 6, 10, 11, 13 (CARAGA)	Based at DILG-LGA (Local Government Academy), worked directly with regional DILG offices, PPDOs & MPDOs.
2000-02	Program Phase – nationwide application	<ul style="list-style-type: none"> Build capacity, and institutionalize the use of IRAP as a local level planning tool in the local government units in the country Develop capacity for training Improve and refine the IRAP procedure Establish an operational national accessibility databank 	79 provinces in regions 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 & ARMM	Based at DILG BLGD, in partnership with the Database Management Unit, worked with the regional DILG offices, PPDOs, SUCs, NEDA & MPDOs through the National Project Coordinating Unit at DILG
2003-05	Program Phase –specialized application	<ul style="list-style-type: none"> IRAP procedure as a project selection, prioritization and validation criteria for InfRES priority areas and sectors Utilize LBES technology for road planning, implementation and maintenance procedures Build in-house capacity at DA Project Staff and LGU level on alternative technologies 	41 provinces in regions 4, 5, 8, 9,10, 11, 12, 13 & ARMM	Based at DA-InfRES Project Coordinating Unit, working directly with the LGUs through the PCU. Asian Development Bank (ADB) loan to the Government of the Phils. implemented by DA

The Philippines completed research, pilot application, project and program phases of the IRAP Project which resulted in i) nationwide application & promotion; ii) increased capacity-building of LGUs, stakeholders & decision-makers; iii) developed capacity for training at planning offices, training and academic institutions; iv) refined and improved the IRAP procedure; and v) established an operational national accessibility database.

ASIST AP takes on the gains of the applications of IRAP through continuous technical cooperation with other donors and national government agencies to promote alternative modalities of local resources utilization and employment generation opportunities.

2.2 Potentials of (continued) IRAP application

At the local level, through the spirit of decentralization and local autonomy, LGUs have options on what tool to adopt in their planning & programming mandates. IRAP is perceived to have a strong chance over other local level planning tools as it has been proven and tested over a decade of application – it's simple easy to apply and not-resource intensive modalities are plausible concerns to LGUs to maximize limited resources.

At the national level, IRAP as a program gears toward specialized application, for instance in the agriculture sector, in project selection and prioritization, monitoring and evaluating impacts of poverty reduction efforts. The IRAP process is an excellent tool to foster cooperation between development agencies and sectors.¹ The collaboration with ADB and DA-InfRES Project will set the environment to look at technical feasibility of improving access to communal irrigation facilities through the IRAP method.

3.0 IRAP in the InfRES Project

3.1 The InfRES Project

The InfRES Project (Infrastructure for Rural Productivity Enhancement Sector) is a 7-year project, a loan from the Asian Development bank by the Government of the Philippines through the Department of Agriculture. The project started in 2000 and is expected to end 2007, will cover 41 provinces of the country. The project aims to remove constraints to improved productivity of farm smallholders and fisherfolk through rural infrastructure investments in areas with high poverty incidence and high agricultural potentials, that will lead to increase in rural incomes, improved food security, economic growth and poverty reduction.² The project has three main components: i) improved rural infrastructure; ii) capacity-building for LGUs; and iii) project management and coordination.

The first component relates to the rural infrastructures to be improved or constructed which fall in three sub-sectors: I) access to infrastructures which includes farm to market roads, slope protection works, small (foot) bridges; cable ways and landing facilities; ii) communal irrigation to include construction, rehabilitation of CIS, CIPs, diversion weirs, repair of drainage canals, desilting, concrete lining and expansion of irrigation canals ; and iii) potable water supply to include construction and rehabilitation of Level 1 (point source) and Level II (communal faucet) spring & tubewell development.

** A paper presented at the 3rd IRAP Regional Workshop, 27-28 March 2003, Bangkok, Thailand... .Español.....Page Page 3 of 8*

The second component relates to the LGUs through participatory consultation process, will take initiative in identifying and prioritizing the needs and demands of communities that lack, and/or need to improve infrastructures to realize the productive potential of their land. The project supports a process of capacity-building at the LGU level and contributes to the strengthening of the decentralization process in the country, improving participation and transparency as well as procedures and responsibilities for operation and maintenance.³

The last component relates to the Department of Agriculture, which is the executing agency. A project coordinating unit (PCU) will be established at the DA central office will have overall responsibility for direction, implementation and policy guidance.³

3.2 Utilization of IRAP procedure in the Project

The Project covers 41 provinces and undertakes four (4) development strategies; improving rural infrastructure, generating rural employment, strengthening decentralization (bottom-up participatory planning), and human resource development and institutional strengthening. The IRAP works along these line of development strategies as well, consequently, the two programs are likely to impact upon each other and an operational link between the two will create mutual benefits and synergy.³

Specifically, IRAP will be applied in the following key result areas:

- i) Local level rural infrastructure planning, selection and prioritization in the 3 InfRES sectors; water, rural roads and communal irrigation facilities
- ii) LGU project proposals validated based on the existing national accessibility database
- iii) Monitoring and evaluating poverty impacts through accessibility information

The work will largely utilize the outputs of the program-phase (nationwide application-IRAP III Project) as major inputs to the proposed technical assistance package. Available IRAP data will be reinforced by information already generated by national government agencies and LGUs as well.

4.0 The IRAP Technical Assistance to the InfRES Sectors

As mentioned earlier, discussion is limited to the use of IRAP procedure for initial assessment/validation in infrastructure planning, selection and prioritization under the irrigation sector. Nevertheless, the proposed technical work on rural roads and water supply will also be briefly discussed. The other key result areas (3.2 i & ii) are excluded in this paper as these require a different treatment of technical discussion.

4.1 Access Infrastructure

The rural infrastructure includes construction, rehabilitation of farm-to-market roads (FMR), upgrading of trails and footpaths to all-weather FMRs, construction, upgrading of transportation infrastructure linking production areas and markets, construction, rehabilitation of single lane concrete and overflow bridges, slope protection works, and construction of cable ways and landing facilities.³

The project planning, selection and prioritization procedures, a combination of indicators, being used to prioritize roads in Laos will be adopted.

Labour-based equipment supported (LBES) technology, another component in the TA of ASIST AP to InfRES, will be used if feasible, in the implementation of above-cited interventions.

4.2 Water Supply

The project supports the rehabilitation, construction of Levels 1 & 2 in the following activities: construction of intake boxes at springs, construction of reservoir and break pressure tanks, laying of distribution pipes and construction, installation of tap stands, and drilling of tube wells and provision of hand pumps.²

The prioritization procedure to be used is the generation of accessibility indicators (AI), a ranking of sectoral conditions at village (barangay), municipal, provincial and regional levels. The AI is a numeric expression of the level of ease or difficulty or lack of access over a service or facility which the communities experience. The higher the AI value the more pronounced is the access problem. Henceforth, the AI facilitates the identification (through simple ranking and comparison) of areas which need interventions to improve access of people against a sectoral concern.

A thematic map based on the AIs (# of Hhs w/o access w/n 2 mins. collection time X travel time (round trip) during dry season) will be generated using computer softwares MapInfo or Arcview GIS. These maps may be generated at municipal, provincial and regional levels.

4.3 Communal Irrigation

These are the types of irrigation facilities InfRES will finance; construction, rehabilitation of communal irrigation facilities to include communal irrigation systems and projects, diversion weirs, drainage canals, desilting, concrete lining and expansion of irrigation canals.²

There are two types of irrigation schemes in the country, national and communal irrigation facilities. The communal irrigation are those built, either by the government or private entities and are operated by the beneficiaries themselves⁴. These are further categorized into two (2) types: 1) gravity, and 2) pump systems. The minimum area required to qualify for communal irrigation scheme is below 1,000 hectares. In excess of the ceiling, the scheme falls under the national facilities built, operated and maintained by the national government.

At the onset, a survey of available project selection & prioritization procedure for irrigation was conducted. The result shows that a set of combination of indicators was developed by the government in 1980s. The National Irrigation Administration (NIA), the government agency with mandates to oversee irrigation concerns, developed a procedure using a scoring system, for national and communal irrigation schemes. Both are being adopted by foreign and locally funded projects, although in some program application slight modifications are done to adjust to donor thematic priorities. The table below shows the criteria for communal irrigation schemes.⁴

Technical Aspect	
1	The expected cropping intensity is at least 130%.
2	The average slope of irrigable area is not more than 10%.
3	No problems on salinity, mine tailings.
4	No quarrying activities within 1 km upstream and 1 km downstream of the proposed diversion point.
Economic Aspect	
5	The internal rate of return (IRR) is not less than 12%.
6	Development cost per hectare is Php 150,000 for new projects, Php 100,000/ha for rehabilitation projects.
7	There should be no conversion of land use from productive permanent crop to rice, i.e coconut, orchards, etc.
8	Project is more than 30 ha. for regular and more than 50 ha. for foreign-assisted projects except when it is for vegetables.
Institutional Aspect	
9	At least 60% of the farmer beneficiaries are willing to organize and amortize project cost.
10	The Irrigator's Association is amortizing the existing loan (if project is for rehabilitation).
11	At least 60% of the project area is not owned by only one land owner.

Communal irrigation projects either new or for rehabilitation follow the same selection and prioritization criteria. Every year, NIA conducts a planning workshop at regional and national level to assess the proposed projects with end view of coming up with a priority list to be funded either local or foreign source, and implemented the next fiscal year.

During the planning workshop, relevant information about the projects to be evaluated are contained in the project profile format being used during the deliberation of the group. See Annex A for the sample format of Communal Project Profile (NIA-CIP Form 1-3). The Project profile is patterned after the indicators of the selection criteria. After the projects are assessed and found to comply with the criteria, the next step is to prioritize these projects. A prioritization criteria patterned after the indicators of the selection criteria will be applied. Using a scoring system, the projects are subjected to the criteria. The higher the score the higher rank. Annex B shows the prioritization criteria. The list of priority projects are submitted to the NIA central office for fund sourcing.

It is assumed that data collection by the LGUs, NIA and project beneficiaries is conducted to generate relevant information as inputs to the generation of the project profiles.

InfRES Project will use a selection criteria (*adopted from the generic indicators*) already in force under the on-going Communal Irrigation Development Project II (CIDP II) and the Mindanao Rural Development Project (MRDP),³ both are World Bank funded projects being implemented by DA. InfRES adheres to decentralization and local autonomy efforts, henceforth projects will be identified on a demand-driven basis, LGUs themselves decide on what development activity to undertake. Nevertheless, the above-cited criteria will be used by the Project as a screening tool, to assess technical, institutional and economic feasibility requirements of the proposed project.

The ILO work relative to the communal irrigation development component of the project is "to coordinate with InfRES staff and concerned agencies in integrating IRAP agricultural sector related data into the identification and selection process"³. The ILO inputs is expected to identify entry points of the IRAP generated data in the existing selection and prioritization processes of the government. Likewise, the inputs are expected to result to the following key areas:

* A paper presented at the 3rd IRAP Regional Workshop, 27-28 March 2003, Bangkok, Thailand... .Españo.....Page Page 6 of 8

- Enhanced capacity of InfRES Project Staff on IRAP
- At the LGU level, assistance on communal irrigation project proposals; develop an IRAP procedure focused on communal irrigation development, apply developed procedure; and LGUs formulate proposals on CIP development.

5.0 Conclusions

IRAP tool looks at access, transport and mobility concerns of people, goods and services and prescribes conceptual interventions to improve access through proper siting of services and facilities or improving the mobility of the people towards these basic needs. Likewise, the procedure facilitates identification of areas that experience easy or difficult access or lack of access, thus guides decision-making as to where to invest the limited resources in a cost-efficient or effective way.

The modalities of InfRES rural infrastructures are access-specific interventions; siting of service and facility or improvement of mobility or transport services. The IRAP conceptual interventions will provide a **value-added feature** to the selection criteria by reinforcing the technical indicators with statistical and graphical understanding of areas with high potentials or limitations for agricultural productivity. The vast data sets generated by IRAP (post-harvest facilities, livelihood sources, crop production and volume, landholdings for agri production, markets, farm inputs, fisheries, cottage & small industries, population, number of households, sources of water, transport services, and inventory of road networks [barangay, municipal, provincial & national]) can be **sound basis of a rationalized decision-making process**.

IRAP generated data to be used as inputs in the technical assistance work can be reinforced by available data at the LGUs and concerned agencies. At the LGU level, one of the most useful source of data is the comprehensive land use map and plan which contains the most relevant information for planning, programming purposes and decision-making as well.

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Participatory Manual on Irrigation Development

ANNEX 11

Setting Prioritization

Setting Priorities using Integrated Rural Accessibility Planning (IRAP)

Chris Donnges – ASIST AP

Background

The identification of investment priorities to improve rural accessibility is one of the most important steps in the IRAP process. IRAP provides certain tools and techniques to enable planners to decide on priorities to improve access in rural areas:what need to be done first (improving access to water, health, education, markets, transport services etc.) and where (in village A, B, C, D or E etc.) ?

Villages identify priorities based on their local needs. Villagers however often do not think beyond the boundaries of their own village. Improving access to water could be a top priority for 10 villages. For the people living in these villages this means that the quantity and quality of the village water supply is inadequate and this is likely to have a negative impact on the living conditions in the village. For these people “access to water is probably one of the biggest problems in the world” and this needs to be solved quickly.

Planners working at sub-district, district, municipal or provincial level have a larger geographical responsibility which can vary from just a few to over hundreds of villages. Improving access to water can be a strategic objective in line with local or national development goals. Resources for investment however are generally limited and priorities need to be set.

The identification of priorities is often a complicated and politically sensitive process. On the one hand planners try to identify priorities based on the real needs of the people, on the other hand planners have to take the political reality into account. IRAP could improve this process of priority setting by introducing certain participatory techniques and rational priority identification tools which can help planners in making decisions, and equally important, justifying these decisions towards their political leaders and development councils.

This short paper describes the generic IRAP prioritization process and highlights some differences at country level. It will serve as the basis for the discussion session on prioritization.

Prioritization under IRAP

The identification of investment priorities using IRAP tools and techniques is done in two different steps: 1) the prioritization of villages and 2) the prioritization of projects.

The first step is to identify priority villages based on the so-called Accessibility Indicators. Accessibility Indicators are numerical values calculated with a simple formula expressing accessibility, or better inaccessibility, at village level. A relatively high indicator tells us that a particular village has poor access to a certain facility, good or service. Accessibility Indicators are a standard tool under IRAP and are used to rank villages from the ones with the poorest access to the ones with the best access by sector.

The second step is to actually identify the projects or other interventions that will improve access in the priority villages. A certain village may come up as a priority in terms of improving access to primary health care, the Accessibility Indicator as such does not tell us what specific intervention is needed to improved access in that particular village. This could be, amongst others, the construction of a health center, the detachment of health staff, the improvement of the road or the construction of a footbridge. Priority villages need to be analyzed to identify what interventions are most appropriate for improving access. As different interventions have different costs and certain interventions may benefit several villages a second round of prioritization, the prioritization of projects, may take place.

The procedure described above is a generic IRAP procedure which is more or less the same in all countries. What varies amongst countries is the way Accessibility Indicators are being calculated. The next section will briefly review different practices in a number of countries in the Asia region.

Prioritization: The Calculation of Accessibility Indicators

The use of indicators is a common practice in planning. Accessibility Indicators show the difficulty or ease with which households have access to goods and services. As an aid to the decision making process, the indicators should be objective measurements of the different levels of accessibility for different trip purposes in a village or within a larger geographical area such as a district or municipality. The data collected under the IRAP exercise is refined into a set of Accessibility Indicators, which relate to the specific sector under consideration.

Accessibility Indicators are derived at different levels: village, sub-district, district or province. At village level they can be used to identify village interventions. Accessibility Indicators in their most simple form relate to the number of households affected and levels of accessibility expressed in travel distances and travel times. In certain IRAP applications, the indicators have become more

complicated in that they include quality elements and perceived values. The following examples show the use of different indicators in different countries.

It appears that the **Philippines** is using the simplest indicators, which are just a function of two variables: people and travel times. For example, if a village has 350 households and it takes, on average, 30 minutes to travel to the nearest market used by the village population the Accessibility Indicator is calculated as $350 * 50 = 17,500$.

In **India** the indicators are the product of three variables: people, travel times and a quality factor. The proposed formula is household x travel time + weight factor.

In **Nepal** a “level of difficulty factor” is added and indicators are calculated using the following formula:

$$A.I. = n \times T \times d, \text{ where } n \text{ is number of households, } T \text{ is travel time and } d \text{ represents a difficulty factor.}$$

The process in **Laos** is more complicated as the following box shows:

Calculation of Indicators

The primary village data is translated into a set of indicators which relate to the specific sector under consideration. The following 7 indicators, for example, are determined for the water sector:

- Number of people in the village
- Type of drinking water system in the village
- Average water collection time
- Type of traditional source
- Perceived water quality
- Villager’s perceived problems
- Villager’s perceived priorities

These indicators are qualitative or quantitative assessments of different circumstances. The indicators used by IRAP Laos are rated from “0” to “4”. “0” means relatively good circumstances and “4” means relatively bad circumstances. A complete set of indicators and their ratings for the water sector could be presented as follows:

An Example of Water Indicators

Village	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5	Indicator 6	Indicator 7
01	3	2	1	2	3	2	0
02	2	2	2	2	1	2	0

03	3	2	2	2	1	4	1
04	3	0	4	4	0	0	0
05	2	0	3	4	3	0	2
06	3	4	1	2	3	4	0
07	3	2	2	2	0	2	0
08	3	4	2	2	4	4	4
09	3	4	1	1	3	4	0
10	3	4	1	2	3	0	4

The following table identifies the different classifications and ratings used in the calculation of the indicators used in the example presented above.

Rating of Indicators – Water Sector

DRINKING WATER	
Indicator 1: Number of People in the Village	
1	Villages < 150 people
2	150 <= village <= 300
3	300 <= village <= 450
4	Village >= 450
Indicator 2: Type of Drinking Water System in the Village	
0	Only Improved Source of Water
2	Both Traditional and Improved
4	Only Traditional Source of Water
Indicator 3: Average Water Collection Time (Round Trip)	
1	5 Minutes or Less ($X \leq 5$)
2	10 Minutes or Less ($6 < X \leq 10$)
3	20 Minutes or Less ($10 <= X <= 20$)
4	More than 20 Minutes ($X > 20$)
Indicator 4: Type of Traditional Source	
1	Spring
2	Shallow Dug Well
3	Rainwater
4	Stream, Lake
Indicator 5: Perceived Water Quality (Dry and Wet Season)	
0	Good Quality in Both Seasons
1	Good in Dry Season but Not Good in Wet Season
3	Good in Wet Season but Not Good in Dry Season
4	Not Good in Both Seasons

Indicator 6: Villager's Perceived Problems	
0	No Problem
2	Minor Problem
4	Big Problem
Indicator 7: Villager's Perceived Priorities	
0	Not a Priority Project
1	Third Priority
2	Second Priority
4	First Priority

Not all indicators are equally important. Some indicators may be more important than others. Different indicators should therefore have different weights. In Laos, local Government officials, as a group, therefore decide on the different weights of the indicators. Individual participants first assign different weights to the different indicators based on their own preferences and perceived importance and afterwards a group average is calculated. Once the indicators and their weights are known participants calculate the score for each village. The following formula is used hereby:

$$\sum_{I=1}^7 \text{Indicator Weight} * \text{Indicator Rating} = \text{Village Score}$$

A higher village score indicates a higher priority to do something; in this case to identify an intervention to improve access to drinking water.

Access to primary health care, primary schools, markets and roads is assessed by a similar procedure. For income generating facilities the situation is more complex

Indonesia is using a similar multi-criteria analysis.

The process used for calculating indicators in **Cambodia** is somewhat similar to the process in Laos. In Cambodia however planners attached greater value to the perceived problems and priorities of the communities and calculate an overall village Accessibility Index, which is a composite indicator of 4 sector indicators.