



Workshop Proceedings
on
Monitoring and Evaluation of Capacity Development Strategies
in
Agricultural Water Management



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Abbreviations

ADB	Asian Development Bank
AEA	American Evaluation Association
AGR	Artificial Groundwater Recharge
APFAMGS	Andhra Pradesh Farmer Managed Groundwater Systems
APWALTA	Andhra Pradesh Water Land and Tree Act
AusAID	Australia's Aid Programme
Bappenas	National Development Planning Agency (<i>Badan Perencanaan Pembangunan Nasional</i>)
BIRDS	Bharathi Integrated Rural Development Society
CBI	Community Based Institution
CBN	Capacity Building Network
CD	Capacity Development
CEA	Canadian Executing Agency
CIDA	Canadian International Development Agency
CoP	Community of Practice
CPO	Central Project Office
CWB	Crop Water Budgeting
DGWRD	Directorate General of Water Resources Development
DGWR	Directorate General of Water Resources (formerly DGWRD)
EA	Executing Agency
ED	Executive Director
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FAOIN	Food and Agriculture Organization India
FCRA	Foreign Contribution Regulation Act
FFS	Farmer Field School
FFS-CWB	Farmer Field School – Crop Water Budgeting
GIS	Geographic Information System
GMC	Groundwater Management Committee
GOI	Government of Indonesia
GPS	Global Positioning System
GWB	Ground Water Balance
HMR	Hydrological Monitoring Record
HPR	Half-yearly Progress Report
HU	Hydrological Unit
HUN	Hydrological Unit Network
ICID	International Commission on Irrigation and Drainage

ICT	Information and Communication Technology
IFAD	International Fund for Agricultural Development
IHA	In-House Adviser
IHE	Institute for Water Education
IMT	Irrigation Management Transfer
INCO-DEV	International Cooperation – Developing Countries
INPIM	International Network on Participatory Irrigation Management
IPM	Integrated Pest Management
IPTRID	International Programme for Technology and Research in Irrigation and Drainage
ITRC	Irrigation Training and Research Center
IWEM	Infrastructure, Water and Environmental Management
IWMI	International Water Management Institute
IWRM	Integrated Water Resources Management
M&E	Monitoring and Evaluation
MD	Managing Director
MDG	Millennium Development Goals
MIS	Management Information System
MPM	Manager Process Monitoring
MPW	Ministry of Public Works
MSc	Master of Science
NBCBN	Nile Basin Capacity Building Network
NFE	Non Formal Education
NGO	Non Governmental Organization
NNGO	Nodal Non Governmental Organization
NREB	Natural Resources and Environmental Board
O & M	Operation and Maintenance
OED	Operations Evaluation Department
OEM	Operations Evaluation Mission
OIBS	Online Irrigation Benchmarking Services
OJT	On-the-job Training
OVI	Objective Verifiable Indicators
PAMST	Policy Analysis and Management Support Team
PCR	Project Completion Report
PEATWISE	New Educational Tools for Sustainable Management of Peatlands in the Humid Tropics
PHM	Participatory Hydrological Monitoring
PIM	Participatory Irrigation Management
PIT	Project Implementation Team
PL	Project Leader

PLC	Programmable Logic Controller
p-m	Person-month
PNGO	Partner Non Governmental Organization
PP	National Regulation (<i>Peraturan Pemerintah</i>)
PPER	Project Performance Evaluation Report
PRI	Panchayat Raj Institution
PRIYUM	Priyum Advisory and Consultancy Services Private Limited
PSC	Project Steering Committee
PTPA	Water Management Committee (<i>Panitia Tata Pengaturan Air</i>)
PWL	Pumping Water Level
PWRS	Provincial Water Resources Service
QO	Quantifiable Objectives
RAP	Rapid Appraisal Process
R&D	Research & Development
RESTORPEAT	Follow-up of the Project STRAPEAT
SCADA	Supervisory Control And Data Acquisition
SE	Subject Expert
SGPL	Sumadhura Geomatica Private Limited
STRAPEAT	Strategies for Implementing Sustainable Management of Peatlands in Borneo
SWL	Static Water Level
TDA	Training Demand Assessment
TST	Technical Support Team
UC	Utilization Certificate
UNDP	United Nations Development Programme
UNESCO-IHE	United Nations Educational, Scientific and Cultural Organization - Institute for Water Education
UNIMAS	University Malaysia Sarawak
US\$	United States Dollar
USA	United States of America
USBR	United States Bureau of Reclamation
VC	Village Coordinator
WATSAL	Water Sector Adjustment Loan
WATSAP	Water Sector Adjustment Program
WE-I	World Education - India
WRDM	Water Resources Development and Management
WRIM	Water Resources and Irrigation Management
WUA	Water User Association
WUR	Wageningen University and Research Centre

Synthesis

Background

In line with its activities, the International Programme for Technology and Research on Irrigation and Drainage (IPTRID) considered issues pertaining to Capacity Development as one of its key areas of interests. In this context, IPTRID kept looking for opportunities where it could join other institutions to promote and support this subject matter.

A workshop held in Montpellier in 2003, organized jointly by the International Commission on Irrigation and Drainage (ICID) and the Food and Agriculture Organization of the United Nations (FAO) on “*Capacity Building in Irrigation and Drainage*”, brought together many of the important practitioners in this field and established the basic framework and principles for capacity development. IPTRID considered this event as an entry point and decided to collaborate with the ICID Working Group on Capacity Building, Training and Education (WG-CBTE) by supporting a second workshop, along the same lines, held in Moscow in 2004 on “*Capacity needs assessment in agricultural water management*”. The event identified five strategic phases of capacity development, which in fact set the pace to convert these events into a series that would look comprehensively into the entire Capacity Development process as advocated in Figure 1.

The workshops in Montpellier and Moscow had essentially covered the three first phases, namely: generalities, the definition of the present capacity, the future desired state, and the identification of the capacity gaps between them. Thus, IPTRID and ICID joined forces for a third workshop which was held in Beijing in 2005 on “*Design and Implementation of Capacity Development Strategies*” which focused primarily on phase 4 with inevitable overlapping with the previous phases of the capacity development process.

To conclude the series, IPTRID and the ICID WG-CBTE supported a final event, this time held in Kuala Lumpur on 14 September 2006. The theme concentrated essentially on the last strategic phase: “*Monitoring and Evaluation of Capacity Development Strategies in Agricultural Water Management*”.

Figure 1. The five strategic steps of capacity development in irrigation and drainage.



The capacity development concept has evolved considerably during the period covered by these events. Initially called capacity “building” it was perceived as a complementary component of the overall interventions to improve the performance of irrigation and drainage systems. Now called capacity “development” it is advocated as an integral element of a more comprehensive strategy required for sustainable and integrated agricultural water management. Thus, capacity development occupies a major leading role in the agricultural development debate.

Overview of the Kuala Lumpur Workshop

The one-day workshop included six presentations covering various aspects of Monitoring and Evaluation in relation to capacity development, the titles and authors are given below:

- “Monitoring and Evaluating Capacity Development in Irrigation” by W. Hundertmark and V. Gillet; a paper contributed by IPTRID.
- “Monitoring and Evaluation Process and Results for Capacity Building of Water Resources Sector in Indonesia” by F.J. Putuhena and A.S. Kusmulyono; a paper from the former Head of the Central Project Office, Government of Indonesia.
- “Monitoring and Evaluation of Capacity Development for Irrigation Modernization” by C. Burt; representing the Irrigation Training and Research Center (ITRC), USA.
- “Monitoring and Evaluation of Capacity Development Programme as part of APFAMGS Project, India” by P.R. Somasekhar, S.V. Gavardhan Das, I.K. Arjun, P. Radharkrishna; a contribution for the FAO programme in India.
- “Capacity Building for Sustainable Management of Peatlands in the Humid Tropics – from Research to Application” by H. Ritzema, M. Murtedza, S. Page, S. Limin and H. Wösten; submitted by the PEATWISE project from Alterra-ILRI, the Netherlands.
- “Monitoring and Evaluation of Capacity Development Programmes at UNESCO-IHE – Reflections from selected cases” by C. Keuls, J. Luijendijk and K. Prasad; and as indicated in the title a contribution from the United Nations Educational, Scientific and Cultural Organization.

An abstract is provided at the beginning of each one of these papers in the publication.

Each presentation was followed by a short question and answer session but related more to clarifications or general comments. However, at the end of the day, the Chairperson directed a more in-depth discussion which centred around an exercise where participants were asked to provide, in writing, answers to two questions: i) What were in their opinion the main issues highlighted by the papers? and ii) What questions they perceived as remaining unsolved? These two points are addressed briefly in the following paragraphs.

In relation to issues highlighted, a first point that seemed to draw agreement among the participants was that **very few capacity development projects in agricultural water management seem to have a monitoring and evaluation (M&E) system put in place**. The relatively limited number of papers submitted to the workshop’s organizing committee and the difficulty to focus on the subject matter of many of those confirmed this assertion even before the event took place. In this connection, a recommendation emerging from the papers presented is that the M&E system should be completely integrated in the project at its design stage (that is under step 3 in Figure 1). Furthermore M&E needs to be activated as soon as the implementation of the Capacity Development (CD) project starts (that is in step 4), but is represented in the “Capacity Development cycle” as step 5 since it is a continuous activity even after project termination and therefore listed at the end of the process.

In a second point, the participants also suggested that **the Logical Framework tool can give the M&E process more credible and scientific support**, with some adaptation to the CD project's peculiarity (long-term process, difficulty to assess the process and the need to identify long-term outcomes as well as short-term outputs, etc.) although it may not be the ideal and only tool to design a proper M&E system. In particular, it can be constraining, whereas there is a need to be flexible enough to adjust the project, based on intermediate results. The M&E of CD at different levels requires different approaches (individual, institutional, enabling environment) that should be reflected in the design.

A third point derived from the examples presented in the workshop, suggests that while the **M&E of CD projects seems time and resources consuming, important advantages were observed in return**. An M&E component seems essential to assess mid-term impact or for mid-course corrections of the project if required, but also for the design of future projects of CD in irrigation and drainage. It also creates a learning environment, instrumental in CD projects. The presentations also provided evidence of a potential "return on investment" due to the M&E, which should be advertised in future project proposals. Farmers from the APFAMGS project in Andhra Pradesh (India) selling their data on groundwater level to the local authority was perceived as one example of the positive benefits of an M&E system.

A fourth lesson highlighted the need for **long term partnerships** under longer term projects in order to better assess the result and relevance of the CD strategy. Notably, a dialogue between the financing agencies or donors and the organizations implementing the CD is required so that all parties can become aware of the importance of M&E. Another recommendation referred to the requirement of **participation of each stakeholder** in order to be able to embed the M&E system in the local behaviour. In particular, every stakeholder of the project should have a clear role in its design, so it would be more easily accepted. A CD project includes different levels of people or organizations, each of them having different goals. In a matter of speech, this translates into "listen to the clients". Finally, along these same lines, the existence of **M&E assures the quality of the CD process**. The participants stressed that capacity development is a continuous process where it is essential to implement concretely what is learnt during the training at both institutional and individual levels. Moreover, persons whose capacity needs to be developed should receive the precise interventions required to suit their needs in practice; M&E plays a role to provide feedback on those requirements.

A fifth and final point suggested that **the complexity of the M&E system increases from the individual to the institutional to the enabling environment level**. Whereas the participants felt that the M&E of CD at the enabling environment level remains indeterminate and unclear, on the contrary at the individual level it is perceived to be simpler. For example, the only case presented where the M&E of CD in irrigation and drainage did not appear to be complex was in the case of a private company providing individual training. "Success" is determined by the number of registrations to the proposed training. If the course does not fit the specific needs of the trainees, it will soon fail to generate participants. This is a simple and direct way to monitor and evaluate the CD.

While the presentations and discussions were deemed very fruitful, the second part of the exercise clearly established that some issues to be addressed, pertaining to the M&E component of CD projects, remain unsolved and will need further examination and constitute a challenge for future fora. The 60 or so issues, as identified by the participants, were combined and integrated into 16 question-type matters grouped around the four following themes, organised from specific details of M&E to a broader overview of CD including donor relation:

1) On the Methodological framework of the M&E

- How to encompass different objectives of a diverse range of CD activities within one project under one conceptual framework?
- How to make the Logical framework more flexible to incorporate intermediate M&E results? How to incorporate the “process” in the logical framework?
- How to compare the achievements? How to take care of the impact-based evaluation of CD? What are the best tools/appropriate indicators to trace the impacts of CD?
- Can we add/delete indicators during the process of implementation?
- How to extend M&E effects/impacts beyond the project?
- How to measure the outcomes? How to evaluate the knowledge transmitted?
- Data collection: Is more better?

2) On the complexity of the implementation of the M&E of CD

- Who should do the M&E? M&E is a specialization.
- How to identify those who can do it? It’s an art!
- The concepts of M&E related to CD are not clear for consultants/experts. Do they need also CD?

3) On the sustainability of the CD projects

- How to evaluate the sustainability of CD? How can CD be sustainable?
- How to manage the discontinuity of project life and sustainability? And between project life and M&E requirements? How to match (indefinite or) long-term CD processes with short-term projects?

4) On relation with donors

- Do the donors agree for changes at mid-term stage of a project?
- How to finance the M&E? The capacity development should be perceived as added value.
- How does a project team give accountability to the donors without effective M&E of their CD project?
- Why are donors not requiring that CD projects include M&E components, since it is required for every other type of project?

The workshop as reflected in the synthesis above already answered some of the questions asked in the keynote paper, in particular concerning the added value given by the M&E system to the CD project. Moreover, the complexity of the implementation of the M&E system of CD process and the lack of people trained for it, suggest that these are the main reasons of their deficiency in the CD projects.

Two recommendations given in the proceedings of the first workshop held in Montpellier was “to organize and support a series of workshops on capacity development” and to “critically review the case studies” in order to form a “knowledge base” as a source of information to accompany guidelines. Three years after these recommendations, each of the proposed themes to be developed at that time (assessing the capacity needs, approaches to CD, M&E CD, etc.) has been touched upon during these workshops and in some cases extensively. Moreover, the four volumes of these workshop proceedings, gathering in total 9 concept notes and 21 country papers or case studies, are expected to be useful for the design and implementation of future CD projects in agricultural water management:

- FAO, ICID. 2004. Capacity development in irrigation and drainage – Issues, challenges and the way ahead. FAO Water Reports 26.
Available at: <ftp://ftp.fao.org/agl/aglw/docs/wr26e.pdf>

- IPTRID. 2005. Workshop Proceedings on Capacity Development in Agricultural Water Management – Moscow 2004.
Available at: ftp://ftp.fao.org/agl/iptrid/moscow_icid.pdf
- IPTRID. 2006. Workshop Proceedings on Design and Implementation of Capacity Development Strategies – Beijing 2005.
Available at: ftp://ftp.fao.org/agl/iptrid/Workshop_Beijing.pdf
- The present workshop proceedings: IPTRID. 2007. Monitoring and Evaluation of Capacity Development Strategies in Agricultural Water Management – Kuala Lumpur 2006.
Available at: ftp://ftp.fao.org/agl/iptrid/Workshop_KL.pdf

Follow-up

Like every ICID working group, the WG-CBTE was established for a specific period and is supposed to be concluded during the 58th ICID International Executive Council in Sacramento, United States of America in October 2007. In the meantime and in order to give a complete overview of the work done by each member of this working group, the chairperson in collaboration with two guest editors is preparing a special issue of the ICID Irrigation and Drainage Journal on capacity development in the sector.

Monitoring and Evaluating Capacity Development in Irrigation

Abstract

Although normally used in conjunction, the words Monitoring and Evaluation represent two separate concepts with different meaning and purposes. Monitoring refers to a continuous progress analysis of ongoing projects that aims to provide early indications for informed decisions and corrective actions. Evaluation consists of a punctual review of the effectiveness and relevance of an ongoing or completed project.

In the context of water for agriculture, the irrigation management transfer and the participatory irrigation management programmes, each one including significant components of Capacity Development, provide important lessons for future capacity development M&E. Besides, other specific irrigation project management tools such as performance benchmarking, rapid appraisal process and participatory M&E to assess the impact of capacity development programmes.

This contribution therefore describes the elements of the M&E framework and the steps required to design a system meeting the needs of the various stakeholders involved. It has to consider some specific characteristics of capacity development including the importance of the process and the interest of self-monitoring for the effectiveness of such a programme. The organizational and accountable aspects of M&E are also highlighted along with some guiding principles for evaluators. Finally, the main conclusions and recommendations indicate necessary future considerations for the improved formulation and implementation of the M&E component of the Capacity Development Programme for irrigation.

Introduction

Over the past three years, the ICID Working Group on Capacity Building, Training and Education has taken important steps towards clarifying and adopting the concept of capacity development of the irrigation sector. A series of workshops recognized that it implies a strategic programming process, which starts with the assessment of capacity needs and proceeds over several analytical and strategizing steps towards the formulation of a capacity development (CD) programme. Normally, this implies the adoption of a three-tiered capacity development strategy focusing on the enabling environment, the organization and the individual.

Quite different from the construction of canals and hydraulic irrigation infrastructure, capacity development involves a process, which is implemented with very few immediate measurable results and impacts. It is therefore critical to its success that a functional and efficient monitoring and evaluation (M&E) system is in place, which ensures that the progression of effort is carefully taken into account and expected impacts are being assessed. As standard monitoring and evaluation procedures in project cycle management may not always deliver the expected results of a capacity development process it is important to design monitoring and evaluation systems, which reflect the specificity of a capacity development programme, and are practical and manageable at the same time.

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The purpose of this paper is to review current knowledge and experiences from existing capacity development initiatives and assess whether the monitoring and evaluation systems adequately reflect the specific nature of capacity programmes and projects. The paper also unveils areas where questions remain open or are only partially answered. It is organized around five chapters. Following this brief introduction, in Chapter Two, we present some common definitions and approaches towards monitoring and evaluation. Chapter Three describes the elements of a M&E framework and the steps and considerations that are required in order to design the systems so that it meets the needs of the various stakeholders involved. Chapter Four highlights general organizational aspects of M&E and provides some guiding principles for evaluators that are deemed important in order to make M&E a useful and accountable exercise. Chapter Five contains the main conclusions and recommendations concerning necessary future considerations for improved formulation and implementation of capacity development programmes for irrigation, giving more weight to monitoring and evaluation as a participatory management tool. Finally, some unveiled areas and remaining questions on the subject indicate the need for further examination.

Monitoring & Evaluation: Definitions and Approaches

Definitions

Although normally used in conjunction, the words monitoring and evaluation represent two separate concepts with different meanings and purposes. While monitoring and evaluation are both concerned with the collection, analysis and use of information to evaluate the relevance of the work done within the programme or project and support informed decision-making, it is useful to understand the differences between the two: What are the general purposes? Who is responsible? When and why are they carried out? This distinction is shown in Table 1.

Accordingly, monitoring refers to a continuous analysis of the progress towards achieving the planned results. According to UNDP (1997) it “aims primarily to provide project management and the main stakeholders of an ongoing programme or project with early indications of progress, or lack thereof, in the achievement of programme or project objectives”. Its main purpose is the improvement of informed management decisions including corrective actions if needed. It usually is part of the internal management responsibility and refers to all levels involved in the capacity programme. It provides information on the physical progress in terms of input provision and execution of activities and results accomplished. It also refers to the quality of the established capacity development process with regard to the level of stakeholder participation, communication and acquired skills and knowledge.

Evaluation refers to a time-bound review of the effectiveness, efficiency, impact, relevance and sustainability of an ongoing or completed programme. It encapsulates a broader view on the way the capacity programme is designed and formulated, and to what extent the assumptions are realistic and valid. Evaluations serve the purpose of policy makers and planners as well as the accountability needs of lending agencies and governments. They involve key stakeholders with direct responsibilities for implementation on the ground (i.e. the project management team) but an external view is also required for more objectivity. They provide a structured opportunity to discuss and agree on the content and build a common understanding of key issues/concerns and of actions that need to be undertaken. Such reviews may be more or less ‘formal’, and would take place regularly throughout the implementation period of a capacity programme.

Despite the differences in conceptual terms, the IFAD guide for project M&E suggests that in practice the processes overlap and are part of a participatory learning process (IFAD. 2004). UNDP (1997) considers that they are interactive and mutually supportive.

Table 1. Definitions of monitoring and evaluation

	Monitoring	Evaluation
General purpose	Continuous analysis of progress towards achieving planned results with the purpose of improving management decision making	Assessment of the efficiency, effectiveness, impact, relevance and sustainability of the programme
Who?	Internal programme management responsibility at all levels	Usually incorporates external input (objectivity) The users of the results (including planners and policy makers concerned with strategic policy and programming issues, rather than just managers responsible for implementing the tasks)
When?	Continuous	Periodic, less frequent – mid term, completion, ex post
Why?	To check the physical (input provision, activities undertaken and results delivered) and financial progress (budget and expenditure) Check quality of process (i.e. stakeholder participation and local capacity development)	Learn broad and generic lessons, applicable to other programmes (concerned with whether or not the right objectives and strategies were chosen); input for policy reviews Provide accountability

Source: Adapted from EC. 2004.

Ex post evaluation of irrigation management transfer and participatory irrigation management programmes

Probably the most important lessons for future capacity development monitoring and evaluation can be learned from the irrigation management transfer (IMT) and the participatory irrigation management (PIM) processes impulsed by the World Bank. Both initiatives imply the establishment of sufficient management capacity for the preparation of states moving from an active role in irrigation management to that of a service provider in irrigation. While IMT has a broader focus on the enabling and financial framework conditions, PIM is concerned with the development of capacity of WUAs. IMT and PIM possess all the ingredients that a capacity development programme entails: (i) a policy and legislation focus to establish an overall framework; (ii) an organizational component addressing changes to key actors such as line agencies, bulk providers and water user associations (WUAs); and (iii) educating and training individuals. Examples of major PIM and IMT programmes include countries such as, Bangladesh and USA in the 1960s, Mali and Colombia in the 1970s, the Philippines, Sri Lanka and Tunisia in the 1980s and later Mexico and Turkey. Other programmes were launched more recently in India, Pakistan, China, Sudan and in the Central Asian countries (Raymond, P.J. 2004).

Ex post evaluations of IMT and PIM initiatives are given by FAO (1999 and 2002). They provide important lessons learned, to be adopted in similar situations and country settings. However, they have relatively little influence on the management and the design evolution of the particular country initiative. Hence, an important function of monitoring and evaluation is lost: feedback to an ongoing dynamic process. This deficiency was recognized by a series of workshops organized by the International Network on Participatory Irrigation Management (INPIM) in the years 1998 and 1999. The gap was subsequently

filled with the production of a guideline on “Monitoring and Evaluation of Irrigation Management Transfer” (Vermillion, D. 2000). The guide considers the usual process of reforming basic institutions of government and empowering farmer organizations as a continuous learning process. It should involve representatives of key stakeholders rather than “a small group of smart people” in the government or technical agencies. The guideline distils the lessons from research and practical experience over the last decade in particular in evaluating irrigation management transfer programmes around the world and serves as a valuable source of information.

Monitoring and evaluation as a project management tool

As mentioned earlier, monitoring and evaluation systems represent effective management tools that provide specific information on the course and impact of capacity development programmes. If specifically designed, they facilitate close interaction with programme staff and stakeholders and can help to maintain their interest in the programme. For the purpose of this paper, three methods of M&E used in the sector of irrigation and drainage are detailed below.

Performance benchmarking

A review study on performance benchmarking in irrigation carried out by HR Wallingford (Cornish, 2005) provides another excellent source of information as to how monitoring and evaluation systems can serve as a management tool in irrigation. Performance benchmarking, like the World Bank, IPTRID-FAO, ICID and IWMI initiative that generated the “Online Irrigation Benchmarking Services (OIBS), involves a system of data collection and analysis, the purpose of which is to improve and to learn from each other. The process is better described as a series of steps encompassing the following: (i) regularly comparing aspects of performance (functions or processes) with best practices, past track record, or a recognized target/norm; (ii) identifying gaps in performance; (iii) identifying the causes of under-performance and proposing measures to address them; (iv) following through with the implementation of improvements; and (v) follow-up by monitoring progress and reviewing the benefits.

Rapid appraisal process

The Rapid Appraisal Process (RAP) is a spreadsheet-based M&E system for performance assessment of canal-based irrigation systems method developed by the Irrigation Training and Research Center (ITRC), California (Burt, C. 2001). RAP uses a set of IPTRID performance indicators categorized into external and internal indicators (IPTRID. 2001). External indicators characterize the inputs/outputs of irrigation projects, whereas internal process indicators rate management and service throughout the system. RAP serves as a valuable tool for countries to prioritize investments in different projects, and to prioritize specific actions within individual irrigation projects (Burt, C. 2001). RAP is now widely used as a capacity development tool for the modernization of irrigation systems mainly in Asian countries (Facon, T. 2002). Initial training enables irrigation management and technical staff to apply and more important to interpret the results. Once an initial set of indicators is established, the results serve as a reference for both technical and management capacity evaluations.

Participatory monitoring & evaluation

Another important distinction is to be made between what is called conventional and participatory Monitoring & Evaluation concepts. Table 2 provides an overview of the main differences that exist between the two concepts. Participatory M&E implies the involvement of stakeholders, programme staff and local facilitators in the exercise. Conventional M&E is usually done by external experts. It uses predetermined indicators focusing on the input and the production of outputs. Participatory M&E usually involves consideration of the capacity development process. The latter also involves self-monitoring of groups and partners involved in the programme.

Table 2. Conventional versus participatory capacity monitoring and evaluation

	Conventional	Participatory
Who?	Usually done by external experts	Stakeholders, project/programme staff, local facilitators, locally based monitoring advisory function
What?	Predetermined indicators of success, principally cost and production outputs	Stakeholders together identify their own indicators of success, which include production outputs and inputs but also results, management process and context
How?	Focus on “ scientific objectivity ” distancing the monitor from other participants	Self-monitoring, the monitor is from the country/community and becomes an advisor, simple methods, adapted to local circumstances, open, immediate sharing of results through local involvement
When?	Usually punctual throughout the project and upon completion	Frequent, continuous process which becomes the backbone of project/programme management
Why?	To track input and outputs	To empower local people to initiate, control, communicate and take corrective action

Source: Adapted from Boesen, J. and Lafontaine, A. 1998.

Larouche and Metzger (2002) provide an example of a practical and innovative methodology for participatory monitoring and evaluation of a capacity development programme in North Sulawesi, Indonesia. The nine-year long project started in 1991 as an engineering-based technical assistance and its direction shifted in 1997 towards a multi-dimensional capacity development programme focusing on two levels of interventions: the external and internal enabling environments. These were then aligned with the Canadian International Development Agency (CIDA) capacity development approach, which distinguishes four levels of intervention: the enabling environment (awareness raising, policy dialogue, governance, etc.), the sector/network level (policy formulation, programme development and implementation, coordination mechanisms, etc.), the organizational level (policy analysis, strategic planning, financial management, etc. and the individual level (staff development, education and training). The lessons learned from this unique programme serve as an important reference for the preparation of this paper.

Designing a M&E Framework for Irrigation CD Programmes

Nearly all major funding agencies provide guidelines on the establishment and implementation of a Programme Monitoring and Evaluation Systems. They normally encompass two main elements: first, some basic design principles and rules, and second, a sequence of operational steps or questions, which are to be followed through in order to make the right choices in terms of information needs, data collection and analysis, verification and dissemination. There are however some notable differences in the sequence and the aspects that are being considered within the design process depending on programme purpose, its logical hierarchy as well as in the way programmes are being implemented. In general, participatory methods require a more complex design process than non-participatory systems and capacity development programmes require a different set of indicators and measures compared to, for instance infrastructure development projects. Essentially, M&E systems of capacity development programmes are composed of the following four elements:

1. A diagnostic framework including a set of meaningful indicators and performance questions in all fields related to the programme and purpose as well as tools and systems for data analysis and interpretation.
2. An effective data and information collection and communication system with adequate data storage and processing facilities such as computers and software systems.
3. A reporting system with a suitable format and indicators being benchmarked against high performance systems.
4. A feedback system which ensure that lessons learned are reflected upon and processes are being adjusted accordingly.

Within the framework of this paper we propose to concentrate on the following five critical steps for the design of an effective capacity development monitoring and evaluation system:

1. Establishing consensus on purpose and scope.
2. Assessing M&E needs and value added.
3. Formulating M&E performance questions and indicators.
4. Selecting M&E mechanisms and tools for knowledge generation and dissemination.
5. Establishing feedback mechanisms for programme improvement.

Establishing consensus on purpose and scope

The first stage of the M&E system design process establishes a broad agreement on its principles and objectives. It asks questions such as: Why do we need M&E and how comprehensive should our M&E system be? How much participation is needed from whom?

Concerning the first question Morgan (1999) of the CIDA policy branch provides a clear answer: “M&E is required for [...] improving the ability or the capacity of individuals, groups and organizations in partner countries to develop their own culture of self-assessment and to establish their own approach to thinking strategically about capacity and performance”. Consequently, it will also improve the effectiveness of the capacity development programme.

As far as scope and comprehensiveness of M&E systems is concerned, no clear answer can be given. It depends largely on the specific needs and priorities of the main stakeholders of the programme. In general, the design of the M&E systems should take account of the following fundamental principles. A key principle of any capacity development initiative is its long-term process orientation. It involves a set of sub principles including partnership, participation of the primary stakeholders, ownership and subsidiarity, learning by doing, a patient approach to changing behaviours, networking and collaboration (Boesen, J. and Lafontaine, A. 1998). Another principle is transparency of the process, which implies clarity at each step, close communication with all stakeholders and effective facilitation of the process. Good facilitation work builds ownership and commitment to results and increases the likelihood that activities will respond to participants’ actual needs. A good communications plan should consider the audience, message, media, frequency, goals, responsibility, feedback mechanisms and measures of communication effectiveness.

Assessing M&E needs and added value

A good M&E system for capacity development in irrigation cannot be designed without proper understanding of the information needs of the multiplicity of programme partners and stakeholders. What are their main interests? What for M&E information is needed? Who will be involved? What do we need to know to monitor and evaluate the project in order to manage it well?

Partners and stakeholders of capacity development programmes for irrigation, such as irrigation agency officials, field operations staff, water user representatives, local government officials, planning department officials, contractors, etc. are likely to have different needs of information. They also fulfil specific functions and responsibilities and they are accountable to their individual governing bodies and supervisors with a set of diverse statutes and procedures in place. They will have different perceptions of what are the needed outcomes, and different views as to what the indicators should assess and what the resulting information might mean. They have different levels of trust and different incentives for participating in any programme activity. A good part of the challenge in establishing a useful monitoring system is to create sufficient overlap of interests (Morgan, P. 1999) to allow useful work to proceed. However, if all potential interests and needs are being considered then there is a substantial risk that the M&E system becomes overloaded with information that either offers little added value or is irrelevant. Careful consideration of priority information needs of various interest groups and partners is therefore essential. Prioritization however, implies a global consensus on criteria and procedures.

Besides their M&E information needs, programme partners may wish to take on active roles in the M&E design and implementation process depending on their level and type of interest. It may include selection of indicators, provision or collection of data, analysis and presentation of data, and information to decision makers as well as utilizing M&E data for performance improvement of the programme.

As a first approximation, the simplified format of Table 3 offers a reasonable overview of the situation. The matrix serves as an example for the distinction of main issues to be addressed in M&E, prime desires and concerns of the main categories of stakeholders and provides a first indication of what M&E needs are to be considered.

Table 3. Summary assessment of partner and stakeholder's interests, concerns and related M&E information needs

	Government	Funding agency	Programme management and staff	Beneficiaries	Civil society water user organizations
Main issue	Poverty reduction Reliance on external expertise	Poverty reduction In-country project management capacity	Poor efficiency and effectiveness of service provision	Reliability, flexibility and effectiveness of services	Environmental friendliness of project designs, social equity
Prime desire	MDG Strong irrigation planning and management capacity	MDG Strong in-country expertise	Efficient effective service provision	Reliable, flexible and affordable service provision	Balanced and sustainable resource use
Prime concern	Relevance of interventions	Effectiveness and impact of technical and financial assistance	Progress of programme implementation Relevance of interventions	Good governance and impact	Environmental sustainability Pollution and water quality monitoring
Main M&E information needs	Process M&E Impact M&E	Input M&E Process M&E Progress M&E Impact M&E	Progress M&E Process M&E	Process quality M&E Impact M&E	Impact M&E

Formulating M&E performance questions and indicators

Once a good understanding and consensus of the key issues, concerns and main M&E information needs is reached, the question arising is: How capacity development progress and impacts can be measured? What tools, mechanisms and resources do we need in order to get a relevant match of gathered and needed information?

Usually, a logical framework serves as an entry point (Example of the Logical Framework of the Sulawesi Project, Indonesia in Annex 1). Its hierarchical structure contains activities, outputs, purpose and goal of the programme/project. Its horizontal logic contains verifiable indicators, means of verification and assumption, that are interlinked and internally consistent. However, indicators contained in logical frameworks can only illustrate a portion of what to monitor and evaluate – especially in the case of capacity development. For example, irrigation projects usually contain a capacity development component, which may involve activities such as staff training, conduct of study tours and on-farm demonstration. Typical indicators contained in a logical framework would read as follows: number of training events for staff reassignments, number of participants in study tours and demonstrations plots, etc. However, the number of training sessions alone does not describe the success of training activities adequately. If complemented with a more detailed description of the skills trainees have acquired in the process and to what level of proficiency they have risen, the success or failure of the training effort would become clearer.

IFAD (2004) suggest the use of **Performance Questions** as a systematic way, which helps formulate more meaningful evaluations. Identifying key performance questions for each activity, output or outcome can help to avoid being overwhelmed by the multiplicity of ill-conceived indicators, which may not tell what is really needed. Examples of key typical performance questions are listed in Table 4. For example, to measure an output, we may want to see what direct tangible products or services the programme delivered as a result of activities. The corresponding performance question to this is the following: What have we delivered as a result of activities? The answer could be expressed a 'number of people trained'. However, to measure what changes have occurred as a result of these outputs, the corresponding performance question would read as follows: To what extent do those trained effectively use their skills?

Selecting M&E mechanisms and tools for knowledge generation and dissemination

Selecting the most suitable data collection, information management, knowledge generation, reporting and dissemination mechanisms is a logical continuation of the previous M&E system design steps taken. There are numerous ways and tools for data collection, information management, knowledge generation, reporting and dissemination. Standard mechanisms include interviews, sampling and survey methods, appraisal techniques, as well forms and report format, etc. Other mechanisms are the following: semi-structured interviews with two or three programme staff preferably from different levels in the organization; half-day workshop with a significant number of staff involved in capacity development; focused group discussions with staff.

The new and innovative monitoring and evaluation system of the CIDA funded Sulawesi project, Indonesia, uses a practical mechanism for the assessment of levels of competence of individuals. It combines it with progress monitoring of specific activities. The system is composed of three main components:

1. A goal setting exercise for each staff member, which on an annual basis describes the expected outcomes, outputs and activities¹.
2. Quantitative performance assessment: Performance assessed and results grouped by different skills acquired and classified into three categories: A (autonomous level), B (minimum supervision) and C (close supervision); a value has been allocated to each (100, 60 and 10 percent respectively). The final score reflects the level of competence for either individuals or the section involved (Annex 2).
3. Qualitative performance assessment: Verification of rating by managers and consultants.

The combination of quantitative and qualitative assessments illustrates the progress achieved by the individual, the section and the organization as a whole (Larouche, G. 2002).

The six performance assessment forms for gathering information are shown in Annex 3. The system permits the project team to: (i) monitor individual levels of competency; (ii) report on progress made on specific activities, (iii) appreciate time required to complete tasks; (iv) evaluate individuals as well as sections and institutional overall capacity; and (v) compile results achieved and identify areas still needing improvements.

Table 4. Information needs in the objective hierarchy of a logical Capacity Development programme framework

Level of logical framework objectives	What to monitor and evaluate?	Performance questions asked
Activities	Have planned activities been completed on time and within budget? What unplanned have been completed?	What have we actually done?
Outputs	What direct tangible products or services has the programme delivered as a result of activities?	What have we delivered as a result of activities? (e.g. number of people trained)
Key Outcomes/ Components	What changes have occurred as a result of outputs? To what extent are these likely to contribute towards the programme purpose and desired impact?	What has been achieved as a result of the outputs (e.g. extent to which those trained are effectively using the skills)
Purpose	Over its lifespan, has the programme achieved the changes for which it can realistically be held accountable?	Have all outcomes together achieved what was anticipated as end-of project situation?
Impact	To what extent has the programme contributed to its long term goals? Why or why not? What unanticipated positive or negative consequences did the programme have? Why did they arise?	What has been achieved as a result of outcomes What contribution is made to the goals?

Source: Adapted from IFAD (2004)

¹ In order to clarify terms output and outcome the project adapted "hardware" referring to tangible outputs that could be measured and physically numbered, and "software" referring to outcomes considered as "harder to identify and measure, and much longer to produce and linked directly to staff capacity" (Larouche, G. 2004).

Validation and feedback mechanisms

Results from M&E of capacity development programmes offer significant opportunity for improvement of the way the programmes is implemented and managed. However, before however improvements to a multi-stakeholder programme can be made, it is considered necessary to validate the M&E findings amongst the programme partners, and ensure that the “lessons learned” are being formulated and translated into a set of actions for improvements. Validation refers to a general check whether the M&E results satisfy the broad evaluation criteria that were initially set. It implies a compliance and relevance check of indicators against the context of the programme.

Presumably, the most frequently used mechanisms in capacity development programmes is the use of annual reviews or mid-term evaluations. These events imply that programmes prepare documentation based on M&E information. They then involve a critical discussion of the programme’s chain of action and anticipated impacts. If facilitated by experienced evaluators such discussions may help programmes to focus on their core business and thereby help to articulate and formulate “lessons learned” and to identify means and ends for improvements. If not through annual review and mid-term evaluation, the same learning effect can be obtained through the conduct of self-reflective staff meetings. In such meetings M&E results are critically reflected upon. Making a critical analysis means moving beyond the collection, processing and review of data. It implies that questions are being asked such as: Why is it happening? So what? And what are the consequences?

Whenever lessons are learned from a M&E exercise it is assumed as appropriate that the programme managers or members of the steering committee take them into consideration and decide whether further related action is needed or not. The outcome of either annual reviews, internal reflective meetings or steering committee meetings should be clearly formulated as management recommendations and proposed actions for improvement. They must be reasonable and appropriate for being adopted by the programme partners.

Documentation

Given the importance of the M&E results for sustained programme support of governments and donors it is important that each step of the M&E systems design process is well documented in a standardized and transparent manner. As an example IFAD (2004) suggests the use of a Monitoring and Evaluation Matrix as a tool to document and facilitate the design and implementation of the M&E system. A hypothetical example for an irrigation CD programme is given in Annex 4. For a given CD programme performance area, the matrix keeps track of performance questions, information needs and indicators, baseline information requirements, data gathering method, required forms, planning and training and on how it is analyzed, reported and fed back into the programme implementation and action plan.

Organizing Monitoring & Evaluation

Organizing monitoring and evaluation as an integral part of a capacity development programme is a formidable management task. Besides the proper design of a M&E framework, it involves consideration of some fundamental principles for evaluators that are based on shared values, respect and equity. It also involves some practical aspects such as the establishment of a responsible M&E focal point as part of the Programme Implementation Unit. Finally, it requires proper documentation so that each step of the M&E design and implementation process is clear and well understood by all involved.

Organizational aspects

Morgan (1999) points out that the monitoring and evaluation of capacity development is “clearly not a simple activity that can be introduced into a programme with a minimum of effort and planning. It requires a change in organizational culture and incentives (however informal and non-financial), and there is often a need for some structural support for M&E, such as a separate evaluation unit”. As a minimum requirement the nomination of a focal point for M&E within the programme management unit could be considered. Such a focal point would act as an internal champion who is responsible for M&E system development and its implementation. Besides, staff should be trained in techniques such as interviewing, statistical analysis and facilitation and definitions, meanings, assumptions, strategies needing to be clarified. Information collection systems and techniques have to be designed, tested and redesigned. This all takes time and resources, which often appear inadequate.

Guiding principles for evaluators

In the year 2004, the American Evaluation Association (AEA), an institution of leading academic organizations involved in evaluation research ratified revised Guidelines for Evaluators (AEA, 2004). The aim of the guideline is “to guide the professional practice of evaluators, and to inform evaluation clients and the general public about the principles they can expect to be upheld by professional evaluators”.

Although the underlying assumptions of the guidelines refer mainly to external evaluation, they are sufficiently generic to be adopted by any monitoring and evaluation systems including self-evaluation of capacity development programmes. Principles are reproduced as follows:

1. Systematic Inquiry: Evaluators conduct systematic, data-based inquiries about whatever is being evaluated.
2. Competence: Evaluators must demonstrate their technical and cultural competence to stakeholders.
3. Integrity/Honesty: Evaluators ensure the honesty and integrity of the entire evaluation process.
4. Respect for People: Evaluators respect the security, dignity and self-worth of the respondents, programme participants, clients and other stakeholders with whom they interact.
5. Responsibilities for General and Public Welfare: Evaluators articulate and take into account the diversity of interests and values that may be related to the general and public welfare.

The guidelines (AEA, 2004) stress that the order of the above mentioned principles does not imply priority among them; priority will vary by situation and evaluator role.

Conclusions and the Way Forward

There is an apparent shortage of well-documented cases for practical monitoring and evaluation of irrigation capacity development programmes. Except for the North Sulawesi Water Resources Institutional Development Project, funded by the Canadian International Development Agency, much of the literature focuses on operational M&E of irrigation systems paying little attention to the capacity development, training impacts or the acquisition of skills and knowledge in a broader sense. Other documentations include project management guidelines or more conceptual papers from international organizations and funding agencies with little practical experience which supports them. This situation is regarded as indicative for the low priority that programme managers normally attach to an internal M&E system as a programme management tool. Since most capacity development programmes are implemented in a multi-stakeholder context participatory M&E becomes a challenge of its own – with additional financial and human resource needs.

However, the potential benefits of a well-designed M&E system can be significant in terms of programme accountability and creditability. Especially the long-term nature of capacity development programmes requires proper demonstration and documentation of processes and their positive impact on the way partner organizations and individuals work. This helps considerably to maintain the support of both government and funding agencies. Internally, M&E can be a real incentive and motivator for programme partners and staff to improve approaches and training methodologies as they go along.

Capacity development programmes in general imply a different set of objectives and approaches compared to structural development programmes. The normal line of action cannot be adopted easily. Inputs and outputs are organized and produced in a series of cyclic learning modules and steps; it is the process that counts as much as the final result. The M&E system of capacity development programmes therefore require a process focus, with indicators very different from the components of the irrigation system's development programme. The use of performance questions appears to be a good way to overcome weaknesses of the conventional standards, which run the risk of being conceived with too little relevance to the desired programme impact. Using performance questions in a participatory programme management context requires, however, good organizational and facilitation skills on the part of the programme management. In a dialogue with the partners, a suitable mix of qualitative and quantitative indicators must be established and agreed upon. Their support and ownership is an essential ingredient for successful participatory M&E of capacity development programmes. In order to make this happen priority should be given to M&E as a critical component of capacity development programmes in irrigation. Despite the attractiveness of a good M&E system, the implications of a M&E focus programme's design and implementation are significant. First, conventional logical frameworks need to be adjusted or complemented by a more meaningful set of performance questions. Second, those responsible for M&E require familiarity with fundamental cultural principles and shared values of an evaluator such as competence, integrity and respect for people.

From the foregoing, some areas remain unveiled and examples found in the literature could not or only partially answer the following questions:

- Why are there so few examples in the literature related to the M&E of Capacity Development Programmes?
- Why does it seem so difficult to implement the M&E component of CD Programmes for Irrigation? Is it specific for irrigation related CD Programmes?
- How does a project team give accountability to the donors without effective M&E of their capacity development project?
- Why are donors not requiring that CD projects include M&E components, since it is required for every other type of project?

The specific characteristic of the capacity development projects that we have presented previously where the process is very important, is one of the main reasons constraining the implementation of M&E for these projects. It is indeed difficult to identify correct indicators reflecting the progress made towards achieving the planned results. However, there is a real need for more focus on the subject for the CD Programme, in particular for irrigation, so that effective M&E systems would be implemented and lessons learnt could improve their relevance and impact.

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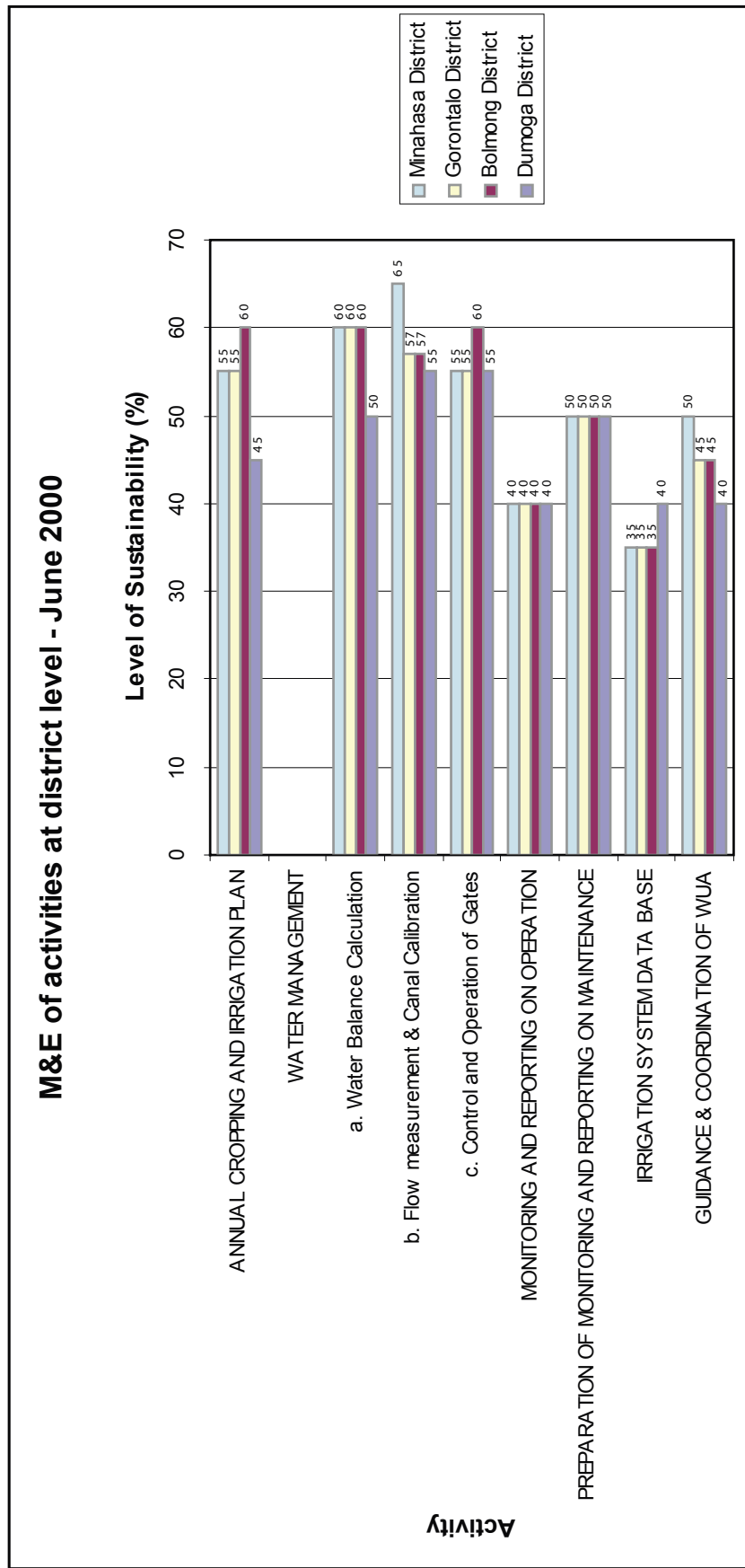
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Annex 1 Purpose level of the initial (1990) and revised (1996) logical framework to meet participatory capacity development programme approach. P3SU project.

Initial Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Project purpose To strengthen the capabilities of PWRS and local units involved with water resources development in the areas of management, planning, design, construction, operation and maintenance	Conditions that will indicate Purpose has been achieved: Increased investment programme in irrigation, flood control, O&M Enhanced reliability of irrigation system, reduction of repair and maintenance costs	Evaluation Reports Monitoring Reports CEA Annual Review Project Steering Committee minutes	Assumptions for achieving purpose: New skills and appropriate knowledge and used effectively by the recipients
Revised Narrative Summary	Expected results	Performance indicator	Source of verification
Purpose To strengthen the capabilities of the PWRS and local units involved with water resources development in the areas of: Management Planning and design Construction Supervision O&M Monitoring and evaluation Resources regulations	PWRS has enhanced its performance and role in Water Resources Dev. & Mgt. Capacity of PWRS managers increased in human, financial and physical resources planning and management PWRS four sections staff skills upgraded in Planning & Design, Construction Supervision Operation and maintenance Monitoring and coordination Legal and regulatory aspects to support water resources -District level (23 schemes) able to prepare annual O&M -Minahasa pilot improved PTPA and one PPTPA started operationalization and UPTD -At least 450 WUA active and legalized through provincial and district staff	-Level of satisfaction of provincial and national authorities -Activities and staffing schedule prepared, budget increased and physical assets better maintained -Annual plans prepared, section outputs of better quality -Regulations and decrees issued -Quality of irrigation and cropping plans, performance of systems in pilot schemes -Level of activities and autonomy of Minahasa -Number of WUAs active and legalized	-Interview with provincial and national authorities -Annual reports produced by PWRS -Staffing allocation schedule -CEA Annual Review Reports, SC Minutes -Provincial legal documents for water resources -Minahasa report minutes of meetings -O&M & Monthly reports
			Important assumption -New skills acquired being used effectively by recipients -Staff trained stays with PWRS and local units -Larger number of core staff move to permanent status -Sufficient need based budget in GOI for O&M

Source: Larouche, G. 2002.

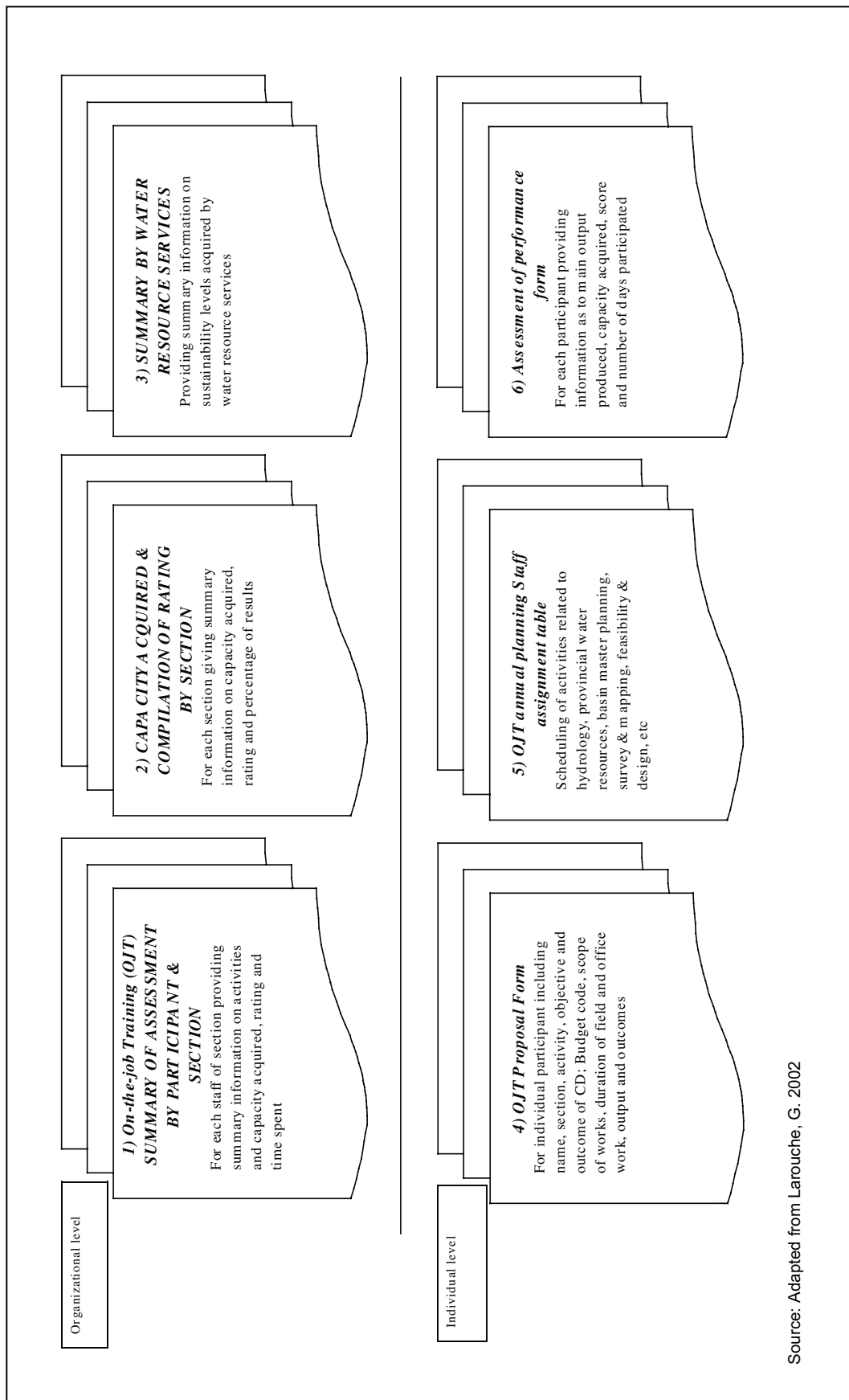
Annex 2 Capacity acquired and compilation of rating in four districts



Note: 60-70% means sustainable

Source: Larouche, G. 2002.

Annex 3 Example forms used for regular monitoring & evaluation of capacity development programmes



Source: Adapted from Larouche, G. 2002

Annex 4 Monitoring & evaluation matrix

Level of intervention	Performance question	Information needs and indicators	Baseline information requirements	Data gathering methods, frequency	Required forms, planning, training, data management	Analysis, reporting, feedback and change process
Environment Awareness about irrigation management policy reform	What is the level of farmers' awareness about irrigation management policy, procedures in the country?	Percentage of farmers aware, unaware of irrigation management policy	Number of farmer, categories and background	Survey, interviews	Questionnaire	Statistical analysis
Policy effect on financial performance of WUAs	How has the irrigation policy reform enabled farmers and water users to improve the financial management of irrigation systems?	Financial sustainability of systems; cost recovery (fee collection rate)	Government expenditures for the irrigation sector; total costs, fee collection rate, revenues of WUAs	Representative sample of irrigation systems Auditing	Surveys Project statistics	Comparative performance analysis
Education in water resource management and irrigation	What are the main effects of the educational system reform?	Interest, acceptance of students; demand from employers	Number of students at entry level; number of graduates; number of successful job applications	Formal surveys Interviews	Questionnaire	Qualitative
Organization Capacity-building activities for new roles of the Irrigation Department (ID)	How has the organization adopted a new role in irrigation management?	Nature of relationship between WUAs and ID (supervisor, facilitator, trainer, arbitrator, etc.)	Mechanisms for farmer contacts (formal informal meetings, workshops, training, etc.); conflict resolution	Survey Semi-structured interviews	Questionnaire	Qualitative
Individuals Job performance of WUA staff	Has the OJT of WUA staff resulted in significant rise of skills	Job satisfaction, motivation. Quality of irrigation and cropping plans, performance of systems on schemes	Job description; job rewards; cropping system information	Surveys, interview	Questionnaire	Quantitative, qualitative

Source: Adapted from IPTRID. 2006 and IFAD. 2004.

The Monitoring and Evaluation Process and Results for Capacity Building of Water Resources Sector in Indonesia

Abstract

The needs assessment for capacity building in water resources sector in Indonesia can be traced back to the early 1990s, and as the Capacity Building Project was partly financed by Asian Development Bank (ADB) loans, its design, implementation, monitoring and evaluation process has been conducted based on the Bank's guidelines and procedures, as well as the Indonesian Standard and Regulations. As such, the project was designed and formulated with a complete project cycle in mind. A Logical Framework Analysis was used during the project design and appraisal to establish a framework that was useful for the project monitoring and evaluation activities. Project components and its outputs were stated in the framework, as well as its outcomes and impacts. The required project input for each component and its performance indicators were also defined in the framework. The Government of Indonesia conducts its own project's monitoring and evaluation, as well as supervising the project in data preparation before the Bank's Review Mission comes. The project was commenced in 1995, and during the project implementation, the framework was adjusted and revised periodically, in accordance with the progress and availability of resources. The project was completed in November 2002, and this paper presents the framework that has been used as a tool for evaluating this project, including the lessons learned, up to the recent Project Performance Evaluation in 29 June 2006, four years after the project was completed.

Introduction

Capacity Building Activities in the Water Resources Sector in Indonesia had been introduced in 1995 through a Capacity Building Project financed by the Asian Development Bank. In this paper an overview of the various components of the Capacity Building Projects is presented in a Logical Framework, which had been used for the Monitoring and Evaluation activities. The use of the Logical Framework will be the focus of this paper to review the monitoring and evaluation process during the implementation period, at the project completion, and also post project evaluation. This project is also a good case for observing the results of a nationwide capacity building in the water resources sector.

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Constructing Logical Framework

The Logical Framework Approach (LFA) was first adopted by USAID in the early 1970s. Since then the LFA has been used by many larger donor organizations, both multilateral and bilateral. The LFA is a management tool that facilitates planning, execution and evaluation of a project. The LFA has the power to communicate a complex and costly project clearly and understandably on papers with sometimes a single sheet. This is achieved by structuring the main elements of a project in a matrix (logical framework), which summarizes the project, highlighting logical linkages between intended inputs, planned activities and expected results and records the underlying assumption. The LFA can be used during project planning to develop the overall design of the project. It also can be used as a tool to improve project implementation, monitoring and evaluation.

A logical framework consists of four main elements. The first of these elements is the project description or narrative summary or objective summary, to be found in the first column on the left. The project description consists of project activities and expected results in the different levels; these are outputs, objectives and overall goals. The second element is the Verifiable (Performance) Indicators or Targets for each level of expected results, in the second column of the logical framework. The third element is Means of Verification or Monitoring Mechanism, in the third column. The fourth element is the Assumptions, in the fourth column of the logical framework (see Figure 1).

The following seven steps are to construct the Logical Framework within two phases:

- A. Analyzing the situation
 1. Analysis of stakeholders
 2. Analysis of problems
 3. Analysis of objectives
 4. Analysis of alternatives
- B. Designing the project:
 5. Identify project components
 6. Identify external factors
 7. Identify the indicators and means of verification

A complete and detailed elaboration on how to construct a Logical Framework is given on-line, as the Logical Framework ADB, which was published by Asian Development Bank (1998), and elsewhere, amongst others in the these websites:

http://www.iucn.org/programme/eval/documents2/training_courses/lfa_courseslide.pdf

<http://www.USAID.gov.au/ausguide/pdf/ausguideline3.3.pdf>

Logical Framework for Capacity Building of THE Water Resources Sector in Indonesia

The goal of the project was to strengthen institutional capacity at national and provincial levels for sustainable, multisectoral and economic management and use of water resources on a river basin basis. The provinces targeted by the project include North Sumatra, South Kalimantan, South East Sulawesi, Bali, West Nusa Tenggara, Irian Jaya and Maluku. The Project was based on the need to go beyond the provision of training (which focuses primarily on personnel as against the institution as a whole) towards the broader concept of capacity building.

Figure 1. The Logical Framework Matrix

NARRATIVE SUMMARY	Verifiable Indicators [TARGETS]	Means of Verification [MONITORING MECHANISM]	IMPORTANT ASSUMPTIONS
Overall Goals: (Programme Level Impact)	What are the quantitative ways of measuring, or qualitative ways of judging, whether these goals are being achieved? (estimated time)	What sources of information exists, or can be provided cost-effectively?	(Goals to Super goals): What external factors are necessary for sustaining objectives in the long run?
Objectives: (Project Level Impact)	What are the quantitative measures or qualitative evidence by which achievement and distribution of impacts and benefits can be judged (estimated time)	What sources of information exists or can be provided cost-effectively? Does provision for collection need to be made under inputs-outputs?	(Objectives to Goals): What conditions external to the project are necessary if achievements of the project's purpose are to contribute to reaching the project goal?
Outputs: Indicate each of the outputs that are to be produced by the project in order to achieve project purpose	What kind and quantity of outputs, and by when will they be produced? (quantity, quality, time)	What sources of information?	(Output to Objective): What are the factors not within the control of the project, which if not present, are liable to restrict progress from outputs to achievements of project purpose?
Activities: Indicate each of the activities that must be undertaken in order to accomplish the outputs.	INPUT REQUIRED	COSTS	(Activity to Output): 1) What external factors must be realized to obtain planned outputs on schedule? 2) What kind of decisions or actions outside the control of the project are necessary for inception of the project? [Precondition]
Note:			
Overall Goals:	Why should this project be implemented?		
Objectives:	What are the objectives of the project?		
Outputs and Activities:	How can the objectives be attained?		
Indicators and Means:	How can the achievement of objectives be measured?		
Assumptions:	What external factors will be important to attain the objectives?		
Input:	What must be the input to implement the project?		
Preconditions:	What conditions have to be satisfied before implementation?		

The objectives of Capacity Building Project for the Water Resources Sector in Indonesia was to strengthen institutional capacity at national and regional (including province, district and river basin) levels for balanced, sustained, economic, and multi-sectoral allocation, management and use of water resources. Specifically, the Project aimed to strengthen:

- (i) operational policy making and existing policy instruments,
- (ii) coordination at national, provincial and river basin levels,
- (iii) management systems and processes,
- (iv) technical standards and practices, and

- (v) related human resources systems and skills of water resources management agencies, both for water resources planning and allocation based on river basin units, and for improved water quality monitoring and management.

The main components of the Project were:

- (i) Strengthening the National Policy and Coordination Framework: a national body, committee or council was going to be established to monitor demand, supply, and allocation nationwide and undertake policy reviews by province, introduce new policies as appropriate and ensure coordination.
- (ii) Strengthening Capacities of Regional Institutions for Integrated Water Resources Development and Management: water management committees would be set up in the targeted provinces, hydrometeorological networks would be established to monitor water availability and quality, and systems would be instituted to coordinate water allocation and quality control.
- (iii) Strengthening Capacities of Directorate General of Water Resources Development (DGWRD): policy review arrangements, general and project management systems, and technical support processes for the regional agencies would be strengthened. Also, a human resources management and development system was going to be revised and strengthened, and technical support to the private sector would be enhanced.

The complete Logical Framework is given in Annex 1, and detailed project descriptions, including project activities was documented in Project Administration Memorandum (PAM), which had been prepared by the Bank based on the Appraisal data and the discussions held with the Directorate General of Water Resources Development as the Executing Agency. The PAM, which also includes the Project Frameworks, was used as a document for project implementation and monitoring, where 290 activities were listed for achieving 40 project targets.

The Capacity Building Project Frameworks was intended to support the needs where, in the early 1990s, the Government began policy, strategy and institutional reforms in multisectoral water resources planning, development and management. Key Government initiatives that were supported during project appraisal and later incorporated in the project design included: (i) the elevation of water resources from a subsector to a sector; (ii) the restructuring of DGWRD to make it more responsive to the needs of water stakeholders in the provinces and river basins; (iii) the proclamation of DGWRD's new Policy and Strategy on Water Resources Development, which clearly defined its commitment to integrate river basin development and management; (iv) the decentralization of management, administrative, and functional activities in the water resources sector to provinces, districts and river basin organizations; (v) the establishment and strengthening of multisectoral water resources management committees in the provinces and river basins; (vi) the implementation of the Clean Rivers Program of the National Environmental Agency, and DGWRD's pilot water quality monitoring projects; and (vii) the launching of DGWRD's programmes for efficient irrigation system operation and maintenance, improved water management, beneficiary participation and public-private partnership in the water sector.

Monitoring and Evaluation Methodology

Monitoring and Evaluation was conducted by following a methodology that is briefly shown in Figure 2, and by checking the project's Logical Framework Matrix. The Monitoring and Evaluation during the implementation stage was mainly at the operational and management level, where an analysis of the output was conducted periodically. There were 12 review missions, including mid-term and project completion missions, which had conducted the monitoring and evaluation during the seven years of implementation time of this capacity building.

Figure 2. Monitoring and Evaluation

Narrative Summary	Target	Monitoring Mechanism	Assumptions [Risk]	MONITORING & EVALUATION
GOAL			→	<p>PROGRAMME LEVEL IMPACT</p> <ul style="list-style-type: none"> • Is the portfolio working? • Is the strategy effective?
OBJECTIVE			→	<p>PROJECT LEVEL IMPACT</p> <ul style="list-style-type: none"> • Is the project relevant? • Is the project effective? • Is the project efficient? • Is the project sustainable?
OUTPUT			→	<p>MANAGEMENT LEVEL</p> <ul style="list-style-type: none"> • Is the output being accomplished? • Are the targets being achieved? • How are the activities being implemented? • How can the activities be improved?
ACTIVITIES	INPUT	COSTS	→	<p>OPERATIONAL LEVEL</p> <ul style="list-style-type: none"> • Gant Chart on schedule? • Disbursement on schedule? • Changing Assumption?

An example of output analysis during the mid-term review is given in the output analysis section. Besides the output analysis, for the project completion report, the mission had also conducted a preliminary assessment of the achievement of the project level impact (objective or outcome) and programme level impact (goal). The process and results are presented in the Project Completion Report section of this paper. The Operation Evaluation Mission (OEM) from ADB, and their Indonesian counterpart from 31 May to 26 June 2006 had carried out the performance evaluation of the achievements of project objectives (project level impact). In this paper, the performance evaluation process and result is presented in the Overall Assessment of the Project Outcome.

Output Analysis at Project Midterm Review

An output analysis based on the Project Logical Framework was carried out for each output, by raising the following questions:

- Is the output being accomplished?
- Are the targets being achieved?
- How were the activities being implemented?
- How can the activities be improved?

After answering all the questions the analysis should then be concluded with an action plan to improve the activities.

Figure 3. Analysis of output accomplishment and improvement of activities

COMPONENT	Strengthening the National Policy and Coordination Framework	1
OUTPUT	National Water Resources Coordination Framework is established.	1.1
TARGETS	Agreement obtained from concerned agencies on the composition, terms of reference, and operating procedures of the National Water Resources Coordination Framework.	1.1.1
	The National Water Resources Coordination Framework operationalized.	1.1.2
	Procedures for coordination established and operationalized.	1.1.3
	Needs for capacity building across the sector identified.	1.1.4
IS THE OUTPUT BEING ACCOMPLISHED?	✓ YES	PARTIALLY NO
ARE THE TARGETS BEING ACHIEVED?		
1.1.1	The National Water Resources Coordination Framework was established in November 1997. The composition, terms of reference, and operating procedures of the Framework are being developed through the Ford Foundation seminars in coordination with BAPPENAS.	
1.1.2	The working arrangements for the operationalization of the Framework are being developed in coordination with BAPPENAS.	
1.1.3	The scope of the Framework was finalized in December 1997. Preliminary discussions at the Ford Foundation seminars with the other agencies involved in the water sector were held in November 1997. Operationalization of the Framework is contingent on interministerial agreement about the working arrangements for the Framework.	
1.1.4	The initial training needs assessment was completed in December 1997. A more detailed assessment of sectoral training needs will be done under the Project output for Human Resources Development in mid-1998.	
HOW ARE THE ACTIVITIES BEING IMPLEMENTED?		
	STRENGTHS	WEAKNESSES
1.1.1	The National Coordination Framework has been established.	1.1.1 Interaction with the other agencies involved in the water sector is lacking.
1.1.2	Other agencies involved in the water sector have agreed to participate in the operationalization of the Framework.	1.1.2 At present, coordination at the national level hinges on the Ford Foundation seminars, which only takes place once a month. More frequent meetings with the other agencies involved in the water sector are required to accelerate the establishment of the National Water Resources Coordination Team.
1.1.3	In-house Advisers, DGWRD, and BAPPENAS were involved in drafting the composition, terms of reference and operating procedures of the Framework.	1.1.3 At present, networking with the other agencies involved in the water sector is insufficient.
1.1.4	The initial training needs assessment was completed in December 1997.	1.1.4 The assessment of capacity building needs in the water sector has not been endorsed in DGWRD.
HOW CAN THE ACTIVITIES BE IMPROVED?		
	PROPOSED CHANGE	JUSTIFICATION
1.1.1	Approximately three (3) person-months of consulting expertise in water resources policy planning are proposed.	1.1.1 The contract of the senior water resources policy planner expires in March 1998. Additional consulting expertise is required to provide continued guidance and support for the establishment of the framework.
1.1.2	In addition to coordination through the Ford Foundation seminars more frequent meetings with the other agencies involved in the water sector are required to accelerate the establishment of the National Water Resources Coordination Team.	1.1.2 Improved networking with other agencies involved in the water sector will expedite operationalization of the Framework.
1.1.3	Ibid.	1.1.3 Ibid.
1.1.4	Finalize capacity building needs assessment in the water sector by mid-1998.	1.1.4 Completion of the capacity building needs assessment is essential to obtain DGWRD's endorsement.
ACTION PLAN TO IMPROVE THE ACTIVITIES		
	ACTION	TARGET DATE
1.1.1	Finalize agreement with the other agencies involved in water resources management and use on the composition, terms of reference and operating procedures of the Framework.	1.1.1 April 1998. 1.1.2 February-April 1998.
1.1.2	Hold more frequent meetings with the other agencies involved in the water sector are required to accelerate the establishment of the National Water Resources Coordination Team.	1.1.3 Not applicable. 1.1.4 June 1998.
1.1.3	Increase networking with other agencies involved in the water sector to expedite operationalization of coordination procedures by the National Water Resources Coordination Team.	
1.1.4	Finalize capacity building needs assessment	

The analysis of output accomplishment and improvement of the activities that was conducted during the Project Midterm Review is presented in Figure 3. This output analysis was for Component 1 Output 1.1. “Establishment of National Water Resources Coordination Framework”.

There were four targets that should be reviewed for its achievement. A SWOT analysis was carried out to expose the strengths and weaknesses of the implementation. While the proposed changes and action plan to improve the activities were taken by considering the opportunity and threat, which was reflected in the justification of the changes. An example of a revised list of activities is given in Figure 4. The mid-term Review Mission based on the output analysis of all the project components produced a Revised Logical Frame as shown in Annex 2.

Project Completion Report

A comprehensive project completion report (PCR) was completed by the Government of Indonesia (GoI) and was submitted to the ADB in September 2002. This report became one important source of information for the Bank’s review mission that conducted the Project Completion Report at the later time. The Project Completion Report was circulated in August 2005. Although it went through all the monitoring and evaluation levels, the major part of the Project Completion Report was done at the operational and project management level. The basis for assessment was the Logical Framework that was revised at the Mid-term Review Report, for a better formulation of measured targets.

At this point of assessment, actual achievement of project output, the input that had been used, and all project spending were known and recorded. Then all these were compared against the planned output, input and project cost. Comparison between planned and actual project outputs for component 1, output 1.1 National Water Resources Coordination Framework is shown in Annex 3 as an example.

The PCR found that implementation arrangements were appropriate and adequately flexible to allow adjustment during implementation to optimize impact. However, government ownership at the start was low and the quality of consulting services and institutional support received was less than conceived. Project design might have been improved with more stakeholder involvement. Training activities met appraised targets and their continuation after the Project has increased the likelihood of project sustainability. The PCR rated the project as successful. The rating followed ADB’s Guidelines for the Preparation of Performance Audit Reports. The Project was assessed as relevant, efficacious, less efficient, likely to be sustained and had significant other impacts. These results were mainly assessed on the delivery of outputs and not on the achievement of outcomes.

The main input to the project was consultancy services in person-months (p-m), besides the civil works and equipment. The comparison of consultant services between appraisal and the actual delivery is given in Annex 4. The figures quoted for the appraisal do not include p-m in Packages 3 and 4 Consultancies and underestimated the overall consulting services required. Appraisal estimated the required services at 176 p-m for international consultants and 647 p-m for national consultants, while the actual services was 379 p-m and 1318 p-m, respectively.

The cost breakdown and the comparison between cost estimate at appraisal and the actual cost are given in Annex 5 “Cost Breakdown”. Furthermore, the actual expenditure is given in Annex 6 “Yearly Expenditure”. On completion, the Project cost a total of US\$22.95 million, compared with US\$46.20 million at the appraisal stage. The ADB loan provided US\$18.34 million of foreign exchange and local cost financing, accounting for 80 percent of the project cost, versus 60 percent at appraisal. The 31.42 billion of Indonesian Rupiah (Rp), equivalent to US\$4.61 million, of local cost financing provided by the Government had made up 20 percent of project financing, versus 40 percent at appraisal.

Figure 4. Original and Revised Activity List

Original Activity List	Revised Activity List
<p>Component 1 - Strengthening National Policy & Coordination Framework</p> <p>1.1. National Water Resources Institutional Framework</p> <p>1.1.1. Obtain Agreement on National WR Coordinating Framework</p> <p>Review & assess current coordination activity in sector at national level</p> <p>Formulate appropriate alternative framework models, inc. TORs, composition</p> <p>Draft Coordinating Framework Procedures Document</p> <p>Obtain Inter-sectoral agreement to Coordinating Framework</p> <p>Finalize Coordinating Framework Procedures Document</p>	<p>Component 1 - Strengthening National Policy & Coordination Mechanism</p> <p>1.1. National Water Resources Institutional Framework</p> <p>1.1.1. Obtain Concurrence on National WRDM Coordination</p> <p>Review & assess current coordination activity in WRDM at national level</p> <p>Formulate appropriate alternative coordination mechanism</p> <p>Obtain concurrence on selected alternative</p> <p>Draft Coordination Procedures</p> <p>Finalize Coordination Procedures</p> <p>Coordinating mechanism & Procedure accepted through regulation</p>
<p>1.1.2. Coordinating Framework Procedures Document completed</p> <p>Operationalize national WR Coordinating Framework</p> <p>Establish Coordinating Framework Secretariat</p> <p>Distribute Coordinating Framework Procedures Document</p> <p>Establish communication protocol</p> <p>National WR Institutional Framework Operationalized</p>	<p>1.1.2. Operationalize National WRDM Coordination</p> <p>Formulate Coordination Secretariat function & operation</p> <p>Establish Coordinating Secretariat regulation</p> <p>Convene initial meeting of the Secretariat</p> <p>Prepare operational policy for national coordination</p> <p>Finalize and distribute coordination procedures</p> <p>Establish inter sectoral/agency communication mechanism</p> <p>National WRDM institutional coordination operationalized</p> <p>Prepare operational policy for national coordination</p> <p>Monitor coordination effectiveness</p>
<p>1.1.3. Establish & operationalize procedures for coordination</p> <p>Convene initial meeting of the Secretariat</p> <p>Circulate minutes of the meeting for comments</p> <p>Prepare operational policy for national coordination</p> <p>Operational policy for coordination prepared</p>	<p>1.1.3. Identify capacity building needs in WRDM at national level</p> <p>Review & assess current training programme in relevant areas</p> <p>Identify mutually supportive training programmes</p> <p>Prepare program for inter-sectoral training activities</p> <p>Identify other areas for cooperative support</p> <p>Capacity Building Needs across sector documented</p>
<p>1.1.4. Identify capacity building needs across sector at national level</p> <p>Review & assess current training programme in relevant areas</p> <p>Identify mutually supportive training programmes</p> <p>Prepare program for inter-sectoral training activities</p> <p>Identify other areas for cooperative support</p> <p>Capacity Building Needs across sector documented</p>	<p>1.1.4. Identify capacity building needs in WRDM at national level</p> <p>Review & assess current training programme in relevant areas</p> <p>Identify mutually supportive training programmes</p> <p>Prepare program for inter-sectoral training activities</p> <p>Identify other areas for cooperative support</p> <p>Capacity Building Needs in WRDM documented</p>

Overall Assessment of the Project Objectives

The assessment was based on criteria proposed in the Asian Development Bank's (ADB) *Guidelines for the Preparation of Performance Evaluation Reports of Public Sector Operations*, concerning project: (i) relevancy, (ii) effectiveness, (iii) efficiency, and (iv) sustainability. The evaluation is important for follow-up actions to promote project impact. The evaluation involved a review of project documents and relevant studies and discussions with ADB staff familiar with the Project followed by an Operations Evaluation Mission (OEM) to Indonesia from 31 May to 26 June 2006. Field studies included discussions with staff of the Directorate General of Water Resources (DGWR, formerly known as Directorate General of Water Resources Development, the executing agency [EA]), and other relevant agencies including the National Development Planning Agency (Bappenas) and the World Bank. The World Bank had supported similar projects for other provinces, as well as at national level. The evaluation team also met officials in three of the four core provinces and water users and key stakeholders. Following internal review, a copy of the draft report was circulated among concerned ADB departments and those of the borrower, for further comments.

Besides the assessment at all levels of monitoring and evaluation, at this stage, the emphasis was placed on the Performance Assessment, which included a methodology for rating the Overall Performance that combine project relevancy, effectiveness, efficiency and sustainability. The mission also provided a chronology of key events affecting the water resources sector from the year 1974 up to June 2006 as given in Annex 7. Besides many other factors, the mission rated the project as relevant and sufficiently effective, and also rated the project as less efficient and less sustainable using these chronological key events. These chronological key events would explain whether the project objectives to support the water resources policy and strategic reforms in the early 1990s (during the project formulation) have been accomplished.

Overall Performance was rated in accordance with the above Guidelines. Each core criterion was assigned a whole-number rating or scale point between 0 and 3. A weighted average of the values for the core criteria ratings was the overall project assessment rating, and it ranges between 0 and 3. The overall rating was categorized as highly successful if the overall weighted average was 2.7 and above; successful between 1.6 and less than 2.7; partly successful between 0.8 and less than 1.6, and unsuccessful if the overall weighted average is less than 0.8.

The Project was rated partly successful, as shown in Table 1, which means that even though the evaluation anticipated a significant shortfall in achieving the design outcome and impact, and may consider full sustainability unlikely, it was expected that some project components would be able to achieve major benefits, equivalent to at least half the level originally expected.

Table 1. Assessment of Project Overall Performance

Criterion	Weight (%)	Assessment	Rating Value	Weighted rating
1. Relevance	20%	Relevant	2	0.4
2. Effectiveness	30%	Sufficiently Effective	2	0.6
3. Efficiency	30%	Less Efficient	1	0.3
4. Sustainability	20%	Less Likely	1	0.2
Overall rating		Partly Successful	0.8 - <1.6	1.5

Constraints and Lessons Learned

There were two main constraints, one that affected the monitoring and evaluation process related to the logical framework application, and the other affected the result of the project. The first one is the project approach, which is called by the OEM as an attempted big bang approach. The second one was the monetary crisis that altered the input and cost required for implementing the project. The big bang approach was addressing a range of problems in many areas. It assumed that if a range of intermediate objectives were met, especially at national level, then overall goals would be achieved. The multiplicity of expected results (which are as many as 5 at the objectives level and 40 at output level) revealed a rather unfocused project. Furthermore, the target outputs increased to 52 during implementation. The components and outputs formulation were in general terms and closer to the project objectives (outcomes). A component output such “Strengthening an Institution”, for example, is a formulation that should have been better if put as a project outcome rather than output.

The financial crisis of 1997, although this was not the only reason, became a major constraint for the project, limiting the availability of counterpart funds and leading to a rapid devaluation of the Indonesian Rupiah. In 1998 there was also a rapid move to decentralize, with economic power devolving to the regions and in particular the districts. All these brought down the project to less efficient and less likely to be sustainable. The overall performance of Capacity Building Project was rating partially successful. Its successful portion was mainly due to the project relevancy, and project effectiveness for producing a new water resources law and related regulations, so that it was consistent with the reform process. On the other hand, the project was less efficient and unlikely to be sustainable, which was due to the risk of using the loan from ADB’s ordinary capital resources. There should be a certain confidence in the Indonesian Government and ADB management that the project could generate economic returns, despite the nationwide capacity building in the water resources sector is a long-term process. The readiness of the borrower to speed up the reform process is reflected in the commitment to finance the project from loan up to 60 percent

The Lessons Learned from the monitoring and evaluation process based on Logical Framework Approach that had been introduced in this Capacity Building Project is the following:

- i. First of all the framework was able to be continuously used since the project formulation in 1994, during the project implementation which completed in June 2002, and up to the project impact assessment in June 2006.
- ii. Given the process nature of the work, it was expected from the beginning that the logical framework of the project might evolve in the course of implementation, requiring adaptation of outputs, inputs and activities.
- iii. The ability of the Project to adjust when challenged by external factors was important in increasing implementation efficiency. Close monitoring and flexibility by the Government and ADB optimized the use of project resources.
- iv. Having partly succeeded with the big bang approach, and not having recovered from the monetary crisis impact, the follow-up actions for long-term process of capacity building would be designed as a progressive series of Technical Assistancess. Each project would have a clear purpose to ensure that the components and outputs included in the project were necessary and sufficient to be achieved. These could accumulate better results, built on experience and adapted more readily to changing circumstances.
- v. Since the project was presented in a logical framework matrix, and all the information is well documented, it is enabling various parties to do further evaluation and draw lessons learned. A number of issues, which appeared after the project such as sustainability and commitment, river basin management, etc. also need to be tackled, monitored and evaluated.

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