This manual has been developed in close cooperation with experts from RECOFTC together with a consultant from the Asian Institute of Technology, and a Peer Review Team consisting of Experts from the MRC-GIZ Watershed Management Project (WSMP), the MRC and representatives from the three Mekong countries of Lao PDR, Viet Nam, and Cambodia:

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The final document was prepared by the project team of the MRC-GIZ Watershed Management Project. The designation employed and the presentation of material in this publication is not to be taken to represent the views of the organisations behind the involved experts. They do not imply the expression of any opinion whatsoever on the part of the involved organisations (GIZ, MRC, RECOFTC) concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.
FOREWORD

The integrated management of water and related resources in the Lower Mekong Basin is critical to achieving sustainable economic and social development, whilst preserving the environment. However, in recent years, rapid land-use changes, industrial expansion, urbanization, mining, hydropower dams and tourism have put increasing pressure on the basin’s ecosystem.

The Mekong River Commission (MRC) has been in existence since 1995 and its role is to help the governments of the Lower Mekong Basin to sustainably manage the basin’s water and related resources. The Basin Development Strategy, which is driven by Integrated Water Resources Management (IWRM) principles, has been approved in January 2011 by the MRC council. It is providing a strategic framework for the Lower Mekong Basin countries to share, utilize, manage and conserve the water and related resources of the Mekong Basin. The strategy recognizes the importance of sub-basins and watersheds as a basic element of IWRM.

Watersheds are the smallest hydrological and management units of the river basin. Since the entire basin’s water goes through watersheds first, any decision made at this level ultimately has an impact on the river basin as a whole. Watersheds offer opportunities for improved livelihoods for the local population and influence development options in the river basins. At the same time, they suffer from a range of degradation challenges that are associated with human activities, which not only endanger the health of watersheds but also of the river basin. It is therefore essential that watersheds are viewed as the basic unit in a river basin, for biophysical, socioeconomic and institutional characterization.

In view of the importance of watersheds - not least of the cumulative impacts from the many watersheds that constitute the Lower Mekong Basin - MRC and GIZ have initiated the Watershed Management Project (WSMP) with the objective to improve the planning and coordination of sustainable management of resources in watersheds by selected relevant organizations of the four Lower Mekong Basin countries at national and regional levels.

Taking into account the experiences gathered in pilot watersheds in the four countries of the Lower Mekong Basin as well as regional and international experiences, the WSMP developed a serious of publications including this Training Manual for Integrated Watershed Management. The manual has been designed for training institutions, who offer capacity development for government officials and other professionals on district, provincial and national level. The training sessions can be adapted to the needs of trainees from different levels and with different backgrounds. The content of the training sessions can also be used to develop a watershed management curriculum for university students.

The training manual is based on the 7 steps of integrated watershed management, which are explained in the ‘Integrated Watershed Management – Manual for Practitioners’. These steps cover the policy and institutional framework for integrated watershed management, the selection process of critical watersheds, how to create a dialogue between concerned stakeholders, how to assess the functions of a watershed, the creation of a plan of action, its implementation and financing and last but not least the monitoring and evaluation. Detailed technical background information is provided in a resource kit (http://wiki.mekonginfo.org).

We hope the training manual will provide the necessary information and guidance for trainers in the Lower Mekong Basin to organize and implement training courses on sustainable integrated water resources management for a wide range of trainees from government agencies, non-government organisations and institutions, as well as universities to facilitate the adoption of better watershed management practices in the context of the MRC’s policy.

Programme Coordinator of the MRC-GIZ watershed management project

Dr. Petra Schill
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<tr>
<td>CDM</td>
<td>Clean Development Mechanism</td>
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<tr>
<td>CoC</td>
<td>Code of Conduct</td>
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<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<tr>
<td>GEF</td>
<td>Global Environment Facility</td>
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<tr>
<td>GIZ</td>
<td>Deutsche Gesellschaft für Internationale Zusammenarbeit</td>
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<tr>
<td>GWP</td>
<td>Global Water Partnership</td>
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<tr>
<td>IUCN</td>
<td>International Union for Conservation of Nature</td>
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<td>IWRM</td>
<td>Integrated Water Resources Management</td>
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<td>IWSM</td>
<td>Integrated Watershed Management</td>
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<tr>
<td>LFA</td>
<td>Logical Framework Approach</td>
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<tr>
<td>LMB</td>
<td>Lower Mekong Basin</td>
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<td>MRC</td>
<td>Mekong River Commission</td>
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<tr>
<td>NGO</td>
<td>Non-government Organization</td>
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<td>NWRM</td>
<td>National Water Resource Management</td>
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<tr>
<td>NWRS</td>
<td>National Water Resource Strategy</td>
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<tr>
<td>ONEB</td>
<td>Office of the National Environmental Board (Thailand)</td>
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<tr>
<td>PoA</td>
<td>Plan of Action</td>
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<tr>
<td>RBM</td>
<td>River Basin Management</td>
</tr>
<tr>
<td>RBO</td>
<td>River Basin Organization</td>
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<tr>
<td>RECOFTC</td>
<td>The Centre for People and Forests</td>
</tr>
<tr>
<td>REDD</td>
<td>Reducing Emissions from Deforestation and Degradation</td>
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<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
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<tr>
<td>WCC</td>
<td>Watershed Classification Committee (Thailand)</td>
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<tr>
<td>WRM</td>
<td>Water Resources Management</td>
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<td>WSC</td>
<td>Watershed Class</td>
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<td>WSM</td>
<td>Watershed Management</td>
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<td>WSMP</td>
<td>Watershed Management Project</td>
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PART 1: HOW TO ORGANIZE THE TRAINING

INTRODUCTION TO THE MANUAL

This section contains guidelines for the trainer to implement training on integrated watershed management on a selected range of watershed-related topics relevant to the Lower Mekong Basin (LMB). The introduction, suggested training methods and approaches should be used in a creative and critical way. The discussions will need to be interpreted and adapted to local conditions. Other approaches can be introduced or a different procedure can be followed that will achieve the same objectives as the approach suggested in the manual, but may be better suited to local conditions. The trainer should not hesitate to make use of those particular approaches or to make some changes in the procedures. If the training is not customized for the trainer or the training participants it will be stiff and less meaningful.

HOW TO USE THIS MANUAL

The manual is modular: The training coordinator can choose the number of trainers, subject matter specialists, and topics and exercises according to the target audience and the length of the training. In PART 2: MODULES AND SESSIONS the manual consists of the following training modules:

- Module M0: Introducing Participants and Training
- Module M1: The Concept of Integrated Watershed Management
- Module M2: Linking Policies and Institutional Framework
- Module M3: Selecting Critical Watersheds
- Module M4: Creating a Dialog
- Module M5: Assessing the Functions of a Watershed
- Module M6: Creating a Plan of Action
- Module M7: Implementing and Financing the Plan of Action
- Module M8: Monitoring and Evaluation

Content-wise the modules draw on a number of more comprehensive documents such as the MRC-GIZ Integrated Watershed Management – Manual for Practitioners and the MRC-GIZ Watershed Management Resource Kit. A soft copy with the most relevant documents is provided together with this Training Manual. For updated and even more information check online http://wiki.mekonginfo.org.

Each module contains different sessions and under each session you find:

- Training objectives of the session,
- Session Info, including a list of links to the MRC-GIZ Watershed Management Resource Kit and other sources, concerning documents which are relevant for this session (all documents are on the CD, which is provided together with this Training Manual)
- Session guide,
- Handouts, including background information from the MRC-GIZ INTEGRATED WATERSHED MANAGEMENT – MANUAL FOR PRACTITIONERS and some additional handouts concerning topics which are not covered in the Practitioners Manual and in the Resource Kit. Copies of these handouts are also on the CD, which is provided together with this Training Manual.

Different modules target different groups. For instance, Modules 1, 2, and 3 are meant for government policy-makers. These training participants can also be exposed to Modules 4–8 for their information only. On the other hand, technical staff and middle management staff can participate in Modules 1, 4, 5, 6, 7, and 8 while being exposed to Modules 2-3 for information.

Integrated Watershed Management (IWSM), as referred to and used in this manual, is a multi-stakeholder process to manage land, water and other natural resources to bring about sustainable and balanced economic, ecologic and social benefits within its hydrological boundaries. The trainer and the training
participants should note that numerous terminologies related to watershed concepts (e.g. inter-sectoral water management, watershed development) are not used in this manual for the sake of consistency.

**WHO ARE THE USERS OF THE MANUAL?**

This training manual has been designed for experienced trainers who have sufficient knowledge and background on watershed management. To ensure maximum impact of the training program, trainers should have the following qualifications:

- Experiences in Integrated Watershed Management (background and practical knowledge),
- Experiences as an interactive trainer or field facilitator,
- Excellent inter-personal and communication skills,
- Familiar with natural resource issues, preferably a combination of watershed management programmes and field-based experiences.

**HOW TO ADAPT THE MANUAL FOR SPECIFIC CONTEXT**

The session guides in this manual adopt adult and experiential learning principles. The experiences of all training participants are built in to generate new sets of lessons learned. The sessions can be powerful for building capacity among the target audience if the trainer slightly adapts them to specific needs. Hence, the manual can be used for a wide range of settings depending on purpose, time, target audience, and resource availability.

Although the steps within the session guides have been organized in logical order, they can be reorganized to suit particular needs. Thus, a typical session guide contains suggestions on a wide range of topics related to the session, written up to encourage a certain flow of activities which include presentations, discussions, exercises, etc. The trainer is encouraged to adapt or modify the session guides or add relevant case studies if needed. The sessions presented in this manual provide an example; with flexibility and with the trainer’s creativity they can help him or her to design effective training courses for target audiences.

Various challenges can emerge during adaptation of the manual. For instance there are specific English terms that can lose their meaning when translated into a national language. Furthermore, there are certain aspects that can be adapted or modified to suit local cultures such as warm-up exercises and energizers.

The training terminology in this manual has been carefully selected. It is consistent with the MRC-GIZ INTEGRATED WATERSHED MANAGEMENT – MANUAL FOR PRACTITIONERS. So do not use other terms to not confuse the training participants. Concerning the translation into national languages, there are several options to deal with the English terms:

- Look for the word in the national language that comes most close to the original meaning,
- Make up a new word in the national language and explain the meaning, or
- Use the original English term and describe the meaning in the national language.

**TRAINING PARTICIPANTS**

To promote effective and interactive learning, the session guides in this manual have been designed for a minimum of 10 and a maximum of 30 training participants.

The primary target participants for training courses are assumed to be mid- to upper-level government officials, project staff, and leaders of civil society groups, at national, provincial and district levels, and officers from NGOs or international agencies who are responsible for facilitating the process of integrated watershed management (IWSM). It would be good to always try to get an appropriate gender balance among the training participants, to make sure that working experiences from different perspectives are contributing to the training.
Training participants should have:

- Clear responsibility for planning and/or implementing IWSM or have the potential to facilitate the process of IWSM planning and implementation,
- Commitment to work with key stakeholders to design and deliver an effective IWSM process, and
- Basic background and field experience in participatory natural resource management.

VENUE PREPARATION

Although this training can be accommodated almost anywhere, it is good to understand certain basic requirements that can help to make it smoother and more comfortable for the trainer and the participants. The most important feature is probably flexibility and convenient space. As the participants will constantly move around and be active during exercises, the trainer will need a room or venue with considerable space and movable furniture. Most of the sessions in this manual encourage participants to share their experiences and views; sitting in 'U' or circle shape will stimulate active participation.

NOTES FOR TRAINERS

The trainer should take the following points into consideration for greater success in reaching out to the training participants:

1. Target group: The trainer must first define the target group. A training course for government representatives from provincial or district line agencies should cover different topics than a training course, which is addressing government representatives from the national level depending on their mandate in processes relevant for watershed management and their background knowledge. If previous knowledge of potential target groups suggests they are too diverse, it is advisable not to bring them together in one training course, as the trainer may need to cover too many different topics in detail, which may be less interesting for some training participants.

However, in some cases, a training course may provide a platform for an exchange of knowledge, (e.g. between hydrology experts and social science specialists in any specific country), and the trainer may want to act more as a facilitator of this knowledge-sharing process rather than as a trainer. The trainer should also take into consideration the sex, age, and social hierarchies of training participants. Some people may, for example, feel too inhibited in the presence of their superiors to participate actively or contribute effectively to the training.

2. Training needs assessment: Having decided on the target group, the trainer must decide what potential participants in the training course need to learn and what they already know. What they should learn is largely dependent on their role in their institutions, and it is important to understand these needs before planning the course. A questionnaire, which the participants should fill in before the training, could help to assess the training needs.

3. Focus of the training: Based on the training needs assessment, the trainer needs to define the focus of the training. A training course may focus on sensitization and awareness raising, if the concept of IWSM is completely new to the participants. If they already have some sound knowledge, then the focus may be to enable them to define procedures and criteria to evaluate policy considerations that have been taken into account, for example, in funding mechanisms.

4. Choosing the length and timing of the training: Though indicative timing for delivery of the modules and sessions is suggested, the trainer must decide on the duration and timing of the actual course delivery depending on the target group and the focus of the training. She/he should remember that some decision-makers may only be able to take part in brief sessions, and that some people/organizations are busier at certain times of the year. Therefore, the trainer needs to make sure she/he is transmitting the essential information in the most appropriate way, and at a suitable time, using the best methodology and approach.
5. Choosing relevant topics to be covered: The choice of modules/sessions/handouts and additional information from the Resource Kit and other sources to be used largely depends on the result of the training needs assessment, the focus of the course, and its intended duration. If the trainer wants to cover topics that she/he is not very familiar with, e.g. water quality management in a specific country, the trainer may consider inviting an expert for a specific session or to work closely with a co-facilitator whose knowledge complements that of the trainer.

6. Defining the sequential order: When the trainer drafts the training program, she/he must think of the sequential order of the topics to cover. The sessions should be coordinated, and the trainer may need to lay out a sound foundation of the basics before moving on to more complicated and advanced topics.

7. Choosing the training methods and media to be used: A variety of training methods are used in each of the modules. Trainers should take care to avoid lengthy lectures or large group discussions, always remembering that each individual learns in a different way. The trainer should try to use as many of the following training methods as the length of the course allows:

- Lectures by the trainer (using PowerPoint presentations, overhead slides or flip charts etc.)
- Background reading materials e.g. case studies
- Group discussions
- Exercises
- Field visit(s)
- Role plays
- Presentations by training participants
- Expert guest speakers or resource persons

It is important to know the best technique to apply for different target groups. These different methods are useful for a variety of reasons. Group discussions, for instance, allow a common understanding of certain topics to develop, whereas lectures and background reading are appropriate means of conveying knowledge. Exercises, case studies, and role plays involve training participants as actors and allow them to apply enhanced knowledge, although they are more time-consuming. The trainer may consider a discussion that applies concepts to real world situations to encourage ownership of the concepts learned.

It is also important to consider who is delivering the message. Decision-makers may be more receptive to a message coming from a well-known expert or high-profile presenter. For example the trainer might require an intervention from a former minister or respected civil society representative.

8. Designing group work: This manual provides a number of different group activities that the trainer may want to use in the training course. However, these group activities are intended as suggestions – the trainer may change them slightly to adapt to his or her purposes, or indeed to create personal, completely new group work.

9. Handouts, presentations, and background reading materials: The trainer will find handouts in the manual that she/he can copy and distribute during the delivery of sessions. The trainer may also consider making his or her own PowerPoint presentations or overheads based on these handouts and the session guidelines. The trainer may also want to consult some other useful manuals and case studies which are available on several websites.

10. Evaluation: At the end of the training course, the trainer should ask participants to evaluate the training. The evaluation method can vary according to the length of the training course. If the trainer has delivered a very short training course (e.g. one module), she/he could ask participants to take two coloured cards and to write down on one “what I have learnt today”, and on the other “what I felt was missing today”. After a longer training course, the trainer may find it more useful to distribute a questionnaire that has to be filled in by participants.
DELIVERY OF TRAINING MODULES

The eight training modules under part 2 of the Training Manual are divided into several sub-modules called sessions. The training delivery should be developed by the trainer based on available time, the target group, and the overall purpose of the training. Indicative duration of the modules and sessions is given in Table 1.

Table 1 - Duration (Indicative) of Modules and Sessions

<table>
<thead>
<tr>
<th>Module</th>
<th>Session</th>
<th>Duration (hrs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M0: Introducing Participants and Training</td>
<td>M0S1: Getting to know each other and expectations</td>
<td>1 h</td>
</tr>
<tr>
<td></td>
<td>M0S2: Introduction to the training</td>
<td>1 h</td>
</tr>
<tr>
<td>M1: The Concept of Integrated Watershed Management</td>
<td>M1S1: Introduction to integrated watershed management</td>
<td>3 h</td>
</tr>
<tr>
<td></td>
<td>M1S2: Stakeholders in integrated watershed management</td>
<td>2 h</td>
</tr>
<tr>
<td>M2: Linking Policies and Institutional Framework</td>
<td>M2S1: Identifying policy and legal frameworks relevant to watershed management</td>
<td>2,5 h</td>
</tr>
<tr>
<td></td>
<td>M2S2: Analysing the institutional framework for watershed management</td>
<td>2,5 h</td>
</tr>
<tr>
<td></td>
<td>M2S3: Understanding watershed management as a part of integrated water resources management</td>
<td>2,5 h</td>
</tr>
<tr>
<td>M3: Selecting Critical Watersheds</td>
<td>M3S1: Defining criteria for the classification of watersheds</td>
<td>1 h</td>
</tr>
<tr>
<td></td>
<td>M3S2: Watershed classification and determination of watershed risk levels</td>
<td>1,5 h</td>
</tr>
<tr>
<td>M4: Creating a Dialog</td>
<td>M4S1: Linking risk levels and coordination arrangements for watershed management</td>
<td>1,5 h</td>
</tr>
<tr>
<td></td>
<td>M4S2: Clarifying the mandate of the watershed management committee</td>
<td>1,5 h</td>
</tr>
<tr>
<td></td>
<td>M4S3: Identifying the stakeholders and deciding how to best involve them</td>
<td>3 h</td>
</tr>
<tr>
<td></td>
<td>M4S4: Gender and watershed management</td>
<td>2,5 h</td>
</tr>
<tr>
<td>M5: Assessing the Functions of a Watershed</td>
<td>M5S1: Collecting and understanding available data and information</td>
<td>1,5 h</td>
</tr>
<tr>
<td></td>
<td>M5S2: Organising and implementing stakeholder surveys</td>
<td>8 h</td>
</tr>
<tr>
<td></td>
<td>M5S3: Identifying and prioritising critical issues</td>
<td>2,5 h</td>
</tr>
<tr>
<td>M6: Creating a Plan of Action</td>
<td>M6S1: Defining the long-term goal and specific objectives</td>
<td>2 h</td>
</tr>
<tr>
<td></td>
<td>M6S2: Identifying achievable solutions, priority actions, responsible actors as well as potential funding sources</td>
<td>3 h</td>
</tr>
<tr>
<td></td>
<td>M6S3: Compiling, managing and updating a Plan of Action</td>
<td>2 h</td>
</tr>
<tr>
<td></td>
<td>M6S4: Integrating the Plan of Action into government planning systems</td>
<td>2,5 h</td>
</tr>
<tr>
<td>M7: Implementing and Financing the Plan of Action</td>
<td>M7S1: Developing concrete projects</td>
<td>4 h</td>
</tr>
<tr>
<td></td>
<td>M7S2: Financing the Plan of Action</td>
<td>4 h</td>
</tr>
<tr>
<td>M8: Monitoring and Evaluation</td>
<td>M8S1: Introduction concerning monitoring and evaluation</td>
<td>1,5 h</td>
</tr>
<tr>
<td></td>
<td>M8S2: Monitoring of individual projects and of the Plan of Action</td>
<td>2,5 h</td>
</tr>
<tr>
<td></td>
<td>M8S3: Evaluating the Plan of Action and individual projects</td>
<td>1,5 h</td>
</tr>
<tr>
<td></td>
<td>M8S4: Monitoring the watershed health</td>
<td>1,5 h</td>
</tr>
<tr>
<td><strong>Total duration</strong></td>
<td></td>
<td><strong>62 h</strong></td>
</tr>
</tbody>
</table>
TRAINING TOOLKIT

The trainer should make sure that some important items are present during the training:

- The training schedule and handouts
- A clock
- Name tags for training participants
- Flip chart stand and paper
- Masking tape
- A whiteboard
- Several pin boards, brown paper to cover the pin boards and pins
- Coloured cards
- Sticky notes (‘Post-Its’)
- Marker pens (different colours)
- An overhead projector, transparencies
- A laptop/PC, LCD projector
- Refreshments
PART 2: MODULES AND SESSIONS

MODULE M0 – INTRODUCING PARTICIPANTS AND TRAINING
SESSION M0S1: GETTING TO KNOW EACH OTHER AND EXPECTATIONS
SESSION M0S2: INTRODUCTION TO THE TRAINING

MODULE M1 – THE CONCEPT OF INTEGRATED WATERSHED MANAGEMENT
SESSION M1S1: INTRODUCTION TO INTEGRATED WATERSHED MANAGEMENT
SESSION M1S2: STAKEHOLDERS IN INTEGRATED WATERSHED MANAGEMENT

MODULE M2 – LINKING POLICIES AND INSTITUTIONAL FRAMEWORK
SESSION M2S1: IDENTIFYING POLICY AND LEGAL FRAMEWORKS RELEVANT TO WATERSHED MANAGEMENT
SESSION M2S2: ANALYSING THE INSTITUTIONAL FRAMEWORK FOR WATERSHED MANAGEMENT
SESSION M2S3: UNDERSTANDING WATERSHED MANAGEMENT AS A PART OF INTEGRATED WATER RESOURCES MANAGEMENT

MODULE M3 – SELECTING CRITICAL WATERSHEDS
SESSION M3S1: DEFINING CRITERIA FOR THE CLASSIFICATION OF WATERSHEDS
SESSION M3S2: WATERSHED CLASSIFICATION AND DETERMINATION OF WATERSHED RISK LEVELS

MODULE M4 – CREATING A DIALOGUE
SESSION M4S1: LINKING RISK LEVELS AND COORDINATION ARRANGEMENTS FOR WATERSHED MANAGEMENT
SESSION M4S2: CLARIFYING THE MANDATE OF THE WATERSHED MANAGEMENT COMMITTEE
SESSION M4S3: IDENTIFYING THE STAKEHOLDERS AND DECIDING HOW TO BEST INVOLVE THEM
SESSION M4S4: GENDER AND WATERSHED MANAGEMENT

MODULE M5 – ASSESSING THE FUNCTIONS OF A WATERSHED
SESSION M5S1: COLLECTING AND UNDERSTANDING AVAILABLE DATA AND INFORMATION
SESSION M5S2: ORGANISING AND IMPLEMENTING STAKEHOLDER SURVEYS
SESSION M5S3: IDENTIFYING AND PRIORITISING CRITICAL ISSUES

MODULE M6 – CREATING A PLAN OF ACTION
SESSION M6S1: DEFINING THE LONG-TERM GOAL AND SPECIFIC OBJECTIVES
SESSION M6S2: IDENTIFYING ACHIEVABLE SOLUTIONS, PRIORITY ACTIONS, RESPONSIBLE ACTORS AS WELL AS POTENTIAL FUNDING SOURCES
SESSION M6S3: COMPILING, MANAGING AND UPDATING A PLAN OF ACTION
SESSION M6S4: INTEGRATING THE PLAN OF ACTION INTO GOVERNMENT PLANNING SYSTEMS

MODULE M7 – IMPLEMENTING AND FINANCING THE PLAN OF ACTION
SESSION M7S1: DEVELOPING CONCRETE PROJECTS
SESSION M7S2: FINANCING THE PLAN OF ACTION

MODULE M8 – MONITORING AND EVALUATION
SESSION M8S1: INTRODUCTION CONCERNING MONITORING AND EVALUATION
SESSION M8S2: MONITORING OF INDIVIDUAL PROJECTS AND OF THE PLAN OF ACTION
SESSION M8S3: EVALUATING THE PLAN OF ACTION AND INDIVIDUAL PROJECTS
SESSION M8S4: MONITORING OF THE WATERSHED HEALTH
MODULE M0 – INTRODUCING PARTICIPANTS AND TRAINING

Training objectives of this module

By the end of the training module M0 the participants:

- Know each other and have shared their expectations regarding the training course,
- Understand the objectives of the training and the training methodology, and
- Are informed about the training schedule.

This training module is divided into two complementary training sessions

Session M0S1: Getting to know each other and expectations
Session M0S2: Introduction to the training
SESSION M0S1: GETTING TO KNOW EACH OTHER AND EXPECTATIONS

Training objectives of this session

By the end of the session, the participants as well as the trainer(s) and resource person(s) have:

• Introduced themselves, and
• Indicated their expectations regarding the training course.

Session Info

<table>
<thead>
<tr>
<th>Time</th>
<th>1 hour (depending on the number of participants)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td>Discussion and visualization with cards</td>
</tr>
<tr>
<td>Materials</td>
<td>• Name tags</td>
</tr>
<tr>
<td></td>
<td>• Pin boards, pins, cards in different colors, and marker pens</td>
</tr>
</tbody>
</table>

Session Guide

1. Start the session by the trainer introducing him/herself.

2. Ask the resource persons and the participants to think of a characteristic they have, which starts with the first letter of their name (e.g. my name is Stefan, I am shy)

3. Ask each resource person and participant to provide a short explanation of why this characteristic was chosen.

   This exercise helps the participants to identify with one another and learn a little more about the characteristics and qualities of people attending the training.

4. Ask the participants to state their expectations regarding the training. What do they hope to gain from this training and how will they use this knowledge?

   Option 1: If the total number of participants is less than 15, distribute two different colored cards (red and green) to each participant and ask them to write one expectation on each card: red card – their expectations regarding the subject matter; green card – their expectations regarding their own participation.

   Option 2: If the total number of participants is 15 or more, ask them to split into pairs. Each pair agrees upon one expectation for each of the two aspects listed above and writes them on cards.

5. Collect all cards and group them on the pin board according to colours. Cards with similar statements should be placed near to each other.

6. Read all the expectations, which have been raised, one by one. Mention that you will explain in the following session (M0S2) how these expectations will be addressed.
SESSION M0S2: INTRODUCTION TO THE TRAINING

Training objectives of this session

By the end of the session, the participants:

• Understand the objectives of the training and the training methodology, and
• Are informed about the training schedule.

Session Info

<table>
<thead>
<tr>
<th>Time</th>
<th>1 hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td>Presentations and discussions</td>
</tr>
<tr>
<td>Materials</td>
<td>Pin boards, pins, cards in different colors, and marker pens</td>
</tr>
<tr>
<td>Handout</td>
<td>Training Schedule</td>
</tr>
</tbody>
</table>

Session Guide

Prepare two presentations before the session: one outlining the Training Objectives and the other explaining how the training will be organized.

1. Present the training objectives and compare them with the expectations of the participants, which were clarified during the previous session (see respective cards on the pin board). The training should try to cover all expectations. Explain deviations if needed. It is also essential to discuss why these deviations occur and to what extent they will affect the outcome of the training.

2. Remind the participants that the training course is aiming at their continuous professional development and has an interactive format. Content-wise, it builds largely on the experiences of the participants and emphasizes active participation during the sessions.

3. Present the training schedule.

4. Explain how the training is organized to meet expectations of the participants and the training objectives. The participants should be aware that each module has well-defined objectives, which should be achieved at the completion of all sessions under this module. This will enable the participants to maintain direction during the training sessions. Although the methods during session delivery can be adjusted to the specific training situation (professional background of participants, expectations, etc.), the objectives normally should not be changed.

5. The trainer should be aware that the participants are typically adults. They have wide experiences and have accumulated considerable knowledge and skills. Learning something new cannot be achieved instantly. Referring back and employing knowledge and skills is the basis of the adult learning process. It may sometimes be necessary to break apart and review the existing knowledge/skills (analyzing) as well as to test new ideas.

6. Often, it may be useful to set up a number of working groups: daily feedback group, energizer group, service provision group etc. The purposes/outputs of such groups are listed below:

   ✓ Daily feedback group

      At the end of each day, this group is responsible for gaining feedback from all participants on lessons learned from the day including their reactions to the training processes and exercises and any other issues affecting the participants’ learning. This group will report back during the first session on the following morning.

   ✓ Energizer group

      This group monitors the dynamics of the entire group and takes agreed action to promote social learning. This group also provides energizers to stimulate the learning atmosphere.
✓ Service provision group

This group takes responsibility for all services that support the participants during the learning process, including distributing and collecting materials and handouts, ensuring that there are sufficient supplies, collecting cards and ‘Post-its’ written by participants and delivering them to the trainer(s), and any other similar tasks that are necessary during the training.
MODULE M1 - THE CONCEPT OF INTEGRATED WATERSHED MANAGEMENT

Training objectives of this module

By the end of the training module M1 the participants are able to:

• Define what is a watershed and understand the concepts related to integrated watershed management,
• Understand the economic, ecological and social dimensions of trans-boundary watershed issues between districts, provinces and countries as well as the challenges to effectively address them,
• Understand the need to balance economic development and the protection of natural resources to secure watershed functions, and
• Understand the concept of stakeholder participation and why it is important to involve all relevant stakeholders in the watershed planning and management processes.

This training module is divided into two complementary training sessions

Session M1S1: Introduction to Integrated Watershed Management
Session M1S2: Stakeholders in Integrated Watershed Management
SESSION M1S1: INTRODUCTION TO INTEGRATED WATERSHED MANAGEMENT

Training objectives of this session

By the end of the session, the participants are able to:

- Define what is a watershed and understand the concept of integrated watershed management,
- Understand the economic, ecological and social dimensions of trans-boundary watershed issues between districts, provinces and countries as well as the challenges to effectively address them, and
- Understand the need to balance economic development and the protection of natural resources to secure watershed functions.

Session Info

<table>
<thead>
<tr>
<th>Time</th>
<th>3 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td>Presentation, group work and discussions</td>
</tr>
<tr>
<td>Aids</td>
<td>computer and LCD projector</td>
</tr>
</tbody>
</table>
| Materials | • Pin boards and flip chart stands  
| | • Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens |

Links for more info


Handouts

- M1S1H1 – What is a watershed?
- M1S1H2 – Map of river basins and watersheds in the LMB
- M1S1H3 – Cross-border impacts of development activities in watersheds
- M1S1H4 – What is Integrated Watershed Management?
- M1S1H5 – Watershed management planning
- M1S1H6 – The conceptual basis of Integrated Watershed Management
- M1S1H7 – The need for a balance

Session Guide

1. Introduce the objectives of this training session.
2. Ask the participants, if anyone has already been involved in watershed management and collect the main points of their experiences and comments on a flip chart.
3. Ask participants to write their understanding of a watershed on coloured cards. Encourage the participants to think freely. Collect all the cards and stick them on the pin board.
4. Show the example of a watershed explaining how a watershed looks like and ask participants to brainstorm on what is included in a watershed. The trainer can find this example in the Resource Kit (see the links above or the CD)
5. As an alternative or in addition, show the illustration representing a South East Asian watershed in handout M1S1H1. Ask participants to identify what they recognise in this watershed and note down the comments and answers on a flip chart (a list for your information: e.g. forest areas, agricultural fields on terraces, agricultural land near a stream which are probably irrigation fields, single farm houses, villages, a hydropower dam, a fisherman, roads, etc.). Ask participants what else could be found
in a watershed and add all ideas to the list on the flip chart. It should be a free flow of ideas (for your information: e.g. other development sites like mining areas, commercial farms, fishponds, rubber plantations, etc.).

6. Explain that about 57 watersheds have been identified in the Lower Mekong Basin (LMB), and show to the participants the respective map (see handout M1S1H2). At the moment, this is the only map available for watersheds in the LMB. Some of the areas, which are indicated as watersheds in this map are actually River Basins including a number of watersheds, while other areas show declared watersheds. For example, the Nam Ngum area in Laos or the Srepok area in Vietnam, are both River Basins including a number of watersheds, while the area indicated as St. Siem Reap in Cambodia is a watershed.

7. Based on the discussion up to now, ask the participants to agree on a definition for a watershed, as a basis before learning in detail about Integrated Watershed Management:
   ✓ To start with, ask the participants to think of a funnel. All the water that falls anywhere inside the funnel ends up at the bottom.
   ✓ Explain that accordingly, a watershed is an area of land where any drop of water falling on this land is contributing water to a defined point along a river. The further downstream you go along that river the more land will be included in the watershed.
   ✓ A simple and brief definition of a watershed is: “A Watershed is an area of land contributing water to the tributary of a river system.”
   ✓ Explain that watersheds are either part of sub-river basins or (like in some countries) the term ‘watershed’ is synonym to the term ‘sub-basin’. In any case they collectively form a larger river basin.

8. Explain the challenge to address cross-border impacts of development measures in watersheds between administrative areas (districts and provinces) and even more challenging between the countries in the Lower Mekong Basin (see handout M1S1H3). For more information see the article “Impacts of Watershed Management and Trans-boundary Issues” (see the links above or the CD).

9. Give a short presentation on Integrated Watershed Management (IWSM) using handout M1S1H4 and the information in the Resource Kit (see the links above or the CD).

10. Ask the participants to think of different planning processes on district and/or provincial level like land-use planning, socio-economic development planning, or planning for mining concessions and hydropower development. Ask them how these planning processes could benefit from the planning on watershed level (compare information in handout M1S1H5).

11. You may consider using the “three pillars” of Integrated Water Resource Management (IWRM) to explain the management instruments, enabling environment and institutional framework which are necessary to balance “Water for livelihood” and “Water as a resource” (see handout M1S1H6).

12. Explain that the aim of this session is to provide only an overview. The details concerning the process of IWSM, the management instruments, enabling environment and institutional framework are explained in the following modules.

13. Ask the participants to read handout M1S1H7 to understand the need to balance the protection of a watershed with the economic development within the watershed area.

14. Summarize the main learning points and check whether the participants reached the training objectives of this session.
Watersheds are river or stream drainage areas. The figure below is an illustration representing a South East Asian watershed. In some countries the term ‘watershed’ is a synonym for sub-river basins. In other countries a watershed describes a part of a sub-river basin. In any case they collectively form a larger river basin. The geographic connection of watersheds as parts of an overall river basin is important when considering policies, principles and strategies for the watershed. Over the last decade, the principles and practices have evolved to ensure that what can be called good water resources management at the broader basin level applies at the smaller watershed level as well.

Figure 1 – Illustration representing a South East Asian watershed
Figure 2 – Map of river basins and watersheds in the LMB
The water and land resources of the Lower Mekong Basin support the livelihoods of some 70 million people. The development and conservation of water and related resources in this region are of critical importance to achieve the sustainable development of economic and social resources, whilst preserving the environment. Watersheds are the most appropriate natural spatial units for sustainable management of these resources and environments.

As many watersheds are within larger sub-basins that drain across international boundaries into the Mekong basin, it is important for the four Lower Mekong Basin countries to discuss how development and resource protection within watersheds can be managed and balanced in the best way possible so that effects both inside and outside the watershed and perhaps in another country, are taken into account in an open and transparent manner.

There are many different approaches throughout the world regarding watershed management, and the higher level river basin management, and every government agency and organisation working in this field will have particular preferences. The processes described in the Practitioners Manual for Integrated Watershed Management have evolved from a very broad consultative process with all four lower Mekong countries over several years, combined with evaluations of successful international experiences. By using these processes but adjusted to suit particular local government systems and particular watershed characteristics, it should be possible to bring about balanced local watershed benefits and impacts, and as well ensure that transboundary impacts - both national and international - are properly considered and discussed.
Integrated Watershed Management is a multi-stakeholder process to manage land, water and other natural resources to bring about sustainable and balanced economic, ecological and social benefits within its hydrological boundaries.

In the early days of watershed management, it was usually seen as an approach to deal with upland issues relating to forestry or land degradation rather than broader water management issues relating to both water quantity and quality. The ecological functions of watersheds were hence given most prominence in deciding land use and zoning issues. However, over the last decade, the interaction of the ecological functions with social and economic functions within a watershed has become better understood. It is now accepted that watershed management must look at all three main functions and then, through broad consultation with all stakeholders in the watershed, find a suitable balance between the benefits of socio-economic development and the resulting impacts on the watershed’s natural resources. As shown in the table below “Examples of watershed functions”, this means seeking a balance between many specific functions, often with some in direct conflict with another.

Table 2 - Examples of watershed functions

<table>
<thead>
<tr>
<th>Main Functions</th>
<th>Examples of specific functions</th>
</tr>
</thead>
</table>
| Ecological functions | Provision of sufficient water with a minimum required quality  
Provision of appropriate water flow over time  
Provision of other goods and services from natural resources like erosion control, soil fertility, biodiversity, clean air, carbon sequestration |
| Economic functions | Provision of sufficient natural resource products (e.g. food, fuel wood, timber, fish), (hydraulic) energy, all required for basic needs of the local population  
Provision of income generating opportunities |
| Social functions | Maintenance of basic social services  
Maintenance and revitalisation of cultural identity and values  
Recreational facilities |
Watershed management planning is like a “helping hand” that should guide the local level planners in taking account of watershed functions in their planning work, in much the same way that national policies and strategies for socio-economic growth or poverty reduction provide a framework for local level planning. The planning on watershed level should not be seen as another layer of planning that is super-imposed on existing province and district plans. It is rather providing important information, which should be considered in those plans. The Figure below “Watershed planning and management at national and local levels” shows

Figure 3 - Watershed planning and management at national and local levels
There are many theoretical definitions of integrated watershed management and how it fits within broader river basin management processes. The Global Water Partnership (GWP) has developed an Integrated Water Resources Management Strategy and identified three essential pillars required for successful Integrated Water Resources Management. The same conditions must be fulfilled in order to allow an integrated watershed management.

Preferably there will be some action on all of these three pillars over the first few years of developing arrangements for integrated watershed management. However, the enabling environment and the institutional framework may have to be set up first to a certain degree of completion before management instruments can be applied. Monitoring activities should be started as soon as possible after the coordination and cooperation arrangements have been determined, data and information have been collected and analysed, and the aspects of the watershed that should be monitored have become clear.

Within the Lower Mekong Basin, each country will have its own political, cultural and administrative systems that will guide how each of these three pillars are adopted and managed at the watershed level. There are likely to be two or more administrative districts (in some cases even more than one province) within a watershed and again, arrangements will differ as to how these districts and provinces, and the stakeholders within them, will work together, coordinate and integrate watershed management activities. In the case of trans-boundaries watersheds, the situation will obviously be more complex.
When watersheds are largely undeveloped, most of the land, water and forest resources exist without stress or any severe degradation. As more development occurs, dams are built affecting aquatic life and fish movements, forests are converted and reduced, and the services that they provide in maintaining clean water runoff, in providing habitats for native animals, in preserving high levels of biodiversity, are reduced. Erosion increases and muddies the streams and waterways, silts up rivers and reservoirs affecting fish health and numbers and the carrying capacity of the streams. Land clearing occurs and irrigation and other agriculture practices expand, bringing changes in runoff patterns and possibly runoff of herbicides and pesticides.

Accelerated economic development can lead to environmental damage and even to unintended consequences such as social and cultural effects on rural people who rely on clean and healthy natural resources. Enhanced water related development to attract tourism may lead to destruction or damage to the environmental assets that are the basic reason for the tourists to visit in the first place. Severely reduced flows over iconic waterfalls due to hydropower dams or large irrigation diversions, or forest or urban encroachment that damages heritage sites and structures serve as examples of such impacts.

On the other hand, new dams and irrigation, hydropower, industry and tourism using water, all provide great opportunities for improved living standards (for instance, better roads, healthcare services, or education). The challenge for water and land resource managers is to find an acceptable balance between the resource use to feed new development, and the level of resource protection that must be given to a watershed’s resources to ensure that they can still provide the essential watershed functions.

There is more than one way to find this acceptable balance. A strong degree of protection will limit economic opportunities and thus affect poverty alleviation, but going too far with the development opportunities might severely degrade the watershed resources. Different groups of people will see this balancing point differently depending on the issues they face or their interests. This means that there must be discussion and compromises, and they must be based on the best information possible.

Land and forest managers often want to limit development expansion, whilst water resource managers may see big benefits from urban expansion, dam construction, new irrigation and hydropower generation. Others will see health and social issues, transport implications and so on.

When a watershed covers two or more districts or other administrative areas, the balance of benefits and impacts between social, economic and environmental watershed functions becomes even harder to resolve as each administrative area in the watershed has to consider the impacts on others. One district will have different economic and environmental goals than another, as there will be different levels of poverty to address or different economic opportunities. In this case, the potential for getting it all wrong is higher if there is not proper participation across all watershed issues and this usually requires a more formal coordinating approach.
SESSION M1S2: STAKEHOLDERS IN INTEGRATED WATERSHED MANAGEMENT

Training objectives of this session

By the end of the session, the participants are able to:

• Understand the concept of stakeholder participation, and
• Understand why it is important to involve all the relevant stakeholders in the watershed planning and management processes.

Session Info

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<th>Time</th>
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| Materials     | • Pin boards and flip chart stands  
                 • Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens |
| Links for more info | http://wiki.mekonginfo.org/index.php/135_Participation  
                              http://wiki.mekonginfo.org/index.php/431CS_Participatory_WSM_Planning_Example_Brazil  
| Handouts      | M1S1H1 – The role of stakeholders in integrated watershed management |

Session Guide

1. Start the session with a game. Write a large symbol ‘ε’ on a flipchart. Invite participants to stand in a circle. Place the symbol in the centre of the circle on the floor. Ask participants to describe exactly what they see on the piece of paper, from where they are standing/sitting. Depending on where they are in the circle, they will either see an ‘m’, a ‘w’, a ‘3’, a half heart, or an ‘E’. Participants may move places so that they see the letter from a different angle and develop different perspectives. (The trainer can decide to use another symbol that will be seen in different ways from different angles.)

2. Ask participants why people see the same picture but give different answers. Conclude that people might see things differently, according to their own perspectives. Hence, perceptions about who is a stakeholder and how important is it to involve this stakeholder in watershed management may vary. In addition, different stakeholders present different perspectives of the situation in the watershed, depending on their needs, interests, priorities as well as their knowledge.

3. Invite participants to share how they interpret the term ‘stakeholder’.

4. Provide a general definition of stakeholders and clarify the importance of stakeholder involvement in watershed management.

5. Ask participants to work in pairs for 10 minutes and let them think about stakeholders in their watersheds.

6. Explain the multi-disciplinary and participatory approach of watershed management.

7. Ask the participants: “In which processes should stakeholders participate and why?” (e.g. information gathering, identification of watershed issues, planning and implementation of watershed management, assessing changes and progress in the process of watershed management, etc.). Invite the participants to give their views. Participants should write their views on flip charts. If there are many participants, groups can be formed.
8. Ask participants to share their experiences with respect to stakeholder involvement in WSM planning and management.

9. Mention that the objective of this session is to understand the term 'stakeholder' and why it is important to involve stakeholders in watershed management. Explain that Module 4 will provide in depth information on how to identify relevant stakeholders and how to involve them in the process of watershed management and Module 5 will provide information on how to organise stakeholder surveys.

10. Summarize the main learning points and check whether the participants reached the training objectives of this session.
All the people with a concern in watershed management – the stakeholders – should participate in the decision making processes. Stakeholder is a term that describes the various actors and groups that have an interest in a particular resource or business. In the context of integrated watershed management, it includes, but is not limited to, government administrators, agencies and officials, private sector representatives, non-governmental organisations, farming groups of all shapes and sizes, and people of all ages, women and men, living in the watershed. Watershed stakeholders have firsthand knowledge and experience from living and working in the watershed. This is not only essential in the phase of information gathering but also when designing workable projects and activities, which finally will be likely to have a positive or negative impact on their livelihoods.

It is not possible to involve all people and communities all the time, but a range of participation and consultation processes needs to be developed that allows for the input by the widest group of relevant people. This means their involvement in information gathering, evaluation and analysis, in order to determine the key issues and a range of possible solutions and then bringing this all together into a Plan of Action and then again when an agreed strategy is being developed and implemented.

Each watershed will need to have a leading group of officials to start this consultation process. The decision on how to involve the broader stakeholder groups will become a decisive matter for the success of a Plan of Action.
MODULE M2 – LINKING POLICIES AND INSTITUTIONAL FRAMEWORK

Policies and legislation largely define the institutional framework for watershed management. The process of watershed management will therefore start with an assessment of the policy frameworks and laws existing at international, regional and national levels to evaluate the context in which watershed management is to occur. The identification of an agency responsible for watershed management in each country will help facilitate coordination and dialogue among the relevant agencies. The role of the responsible agency will be instrumental in integrating watershed management into national frameworks for water resources management.

Training objectives of this module

By the end of the training module M2 the participants are able to:

- Analyze the policy and legal framework in their country, which is relevant for watershed management,
- Identify potential gaps in the respective policies, strategies, laws and regulations and clarify necessary improvements,
- Analyze the institutional framework for watershed management,
- Identify potential conflicting interests between sector agencies and clarify conflict resolution procedures,
- Identify options for cross-sector coordination at national and sub-national level,
- Understand the concept of Integrated Water Resources Management (IWRM) and its main principles.

This training module is divided into three complementary training sessions

Session M2S1: Identifying policy and legal framework relevant to watershed management
Session M2S2: Analysing the institutional framework for watershed management
Session M2S3: Understanding watershed management as a part of integrated water resources management
SESSION M2S1: IDENTIFYING POLICY AND LEGAL FRAMEWORKS RELEVANT TO WATERSHED MANAGEMENT

Training objectives of this session

By the end of the session, the participants are able to:

- Analyze the policy and legal framework in their country, which is relevant for watershed management, and
- Identify potential gaps in the respective policies, strategies, laws and regulations, and clarify necessary improvements.

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http://wiki.mekonginfo.org/index.php/203TA_Local_Regulations_Community_Based_NRM_Example_Cam
| Handouts   | M2S1H1 – Identifying policy frameworks relevant to watershed management
M2S1H2 – The relationship between policy and legislation |

Session Guide

1. Introduce the objectives of this training session and give a short introductory presentation using the information in the handouts and the Resource Kit (see the links above or the CD).

2. Ask participants what is the difference between policy and legislation? Write all the comments made by the participants on a flip-chart. Use handout M2S1H2 and the information in the Resource Kit (see the links above or the CD) to prepare a brief presentation on the relationship between policy and legislation with special emphasis on watershed management.

3. Invite the participants to work in groups and list policies as well as respective laws related to watershed management at the international, regional and national levels on a flip chart.

4. Ask all the groups to present their lists in the plenary. Facilitate a discussion on open questions and comments and give some examples of the policies and agreements which are related to watershed management in LMB countries.

5. Ask the participants to read Thailand’s National Water Vision and Policy which you find on the CD or in the Resource Kit (see the links above).

6. Invite the participants to work in groups and give them 30 minutes to analyse the internal consistency and logic of the provisions in Thailand’s Water Policy. Use the following questions (the trainer can modify the questions based on who are the participants in the training course):

- How does the policy ensure economic development vis-à-vis ecological integrity?
- How does the policy ensure economic efficiency vs. social equity?
What are the possible implications of the policy?

7. Ask each group to present their results in the plenary.

8. Facilitate a discussion on the following questions:
   - How can we have a trade-off between economic development and environmental protection?
   - If an imbalance is found, what are the possible implications?
   - In your opinion, how can negative impacts be reduced or avoided?
   - If a balance is found, how can we promote such policies?

9. Summarize the main learning points from this session and link them with the next training sessions.
International and regional policies and agreements provide the framework for the development of national policies. A number of international agreements relevant to watershed management like the 2006 Procedures for Water Quality or the 2003 Procedures for Waters use Monitoring have been ratified by the four countries of the Lower Mekong Basin. They support the countries with a set of guidelines that they are likely to take into account when developing water related policies.

At regional level, the Mekong River Commission is the agency with the strongest mandate to support the development and the implementation of a regional policy framework. Created by an agreement between the governments of the four Lower Mekong Basin countries, the MRC aims to encourage cooperation for the sustainable development of the Mekong River Basin. It has established several processes and programmes that support this regional policy framework. The Basin Development Plan, for instance, is an initiative of the MRC using the principle of water resources management to achieve a balance between socio-economic development and environmental concerns and to create a framework for development based on technical knowledge as well as public, stakeholder and political views.

At national levels, a series of national objectives, goals and policies will guide how much development, and of what type, is required in provinces and districts over a 5 to 10-year period. These goals and policies are usually translated into a range of specific projects and activities in 5-year socio-economic plans and poverty reduction plans. These development targets are usually nominated for administrative areas such as provinces and districts and, sometimes now for an overall river basin, sub-basin or at the lower level of a watershed. In the Mekong region, it remains unusual for watershed issues to be integrated into socio-economic development plans. It is hence more likely that there will be little consideration of impacts, if any, on the wider basin or watershed level, let alone trans-boundary impacts.
Policies and legislation largely define the institutional framework for WSM. They are separate and distinct instruments of governance, although in practice legislation is often still misleadingly referred to as policy and vice versa.

**Policy Framework**

In general, policies represent a vision and a course of action that a government has adopted or wants to adopt. They are required in order to lead the development of laws and regulations to achieve the formulated policy goals. The formulation of policies is a core function of a government. Policies should ideally be formulated through a participatory, democratic, and transparent and informed decision-making process that comprises various successive activities, which are often referred to as the policy cycle. This requires a multi-stakeholder dialogue that is based on the extensive consultation and involvement of policy-makers, stakeholders, and the general public. In this context, an innovative model that helps to strengthen consultative mechanisms and improve the communication between actors during policy formulation processes is presented in a case study from Cambodia.

WSM policies are necessary at the national level because they provide a framework within which all water and related resources should be managed and the WSM approach should be developed. Such policies should be in line with international commitments and the objectives that have been set for overall socio-economic development. They ensure that WSM principles and objectives are integrated into relevant sector policies and WSM plans or guidelines.

While all LMB countries have policies that relate to WSM, the extent to which they have been developed, as well as their focus, varies. Separate WSM policies do not yet exist at the national level, except in Lao PDR. The only WSM-related policies that exist so far, are those that mainly originate from the different sectors, namely environmental management, water resources management, land management, forestry, agriculture, and rural development. All of countries need to improve and refine their existing policies, although the extent to which these necessary adjustments have to be made varies. For example, Lao PDR appears to have a well-developed policy framework that includes a national strategy for the management of Water Resources (National Water Resources Programme Strategy 2011 – 2015). Cambodia on the other hand up to now has no specific policy concerning the management of water Resources and has only recently begun to address WSM.

**Legal framework**

Legislation is the law promulgated by a governing body, which sets out specific mandates, rights, responsibilities, and prohibitions on a specific matter. In general, its function is to enforce and implement policies, and to provide effective administrative and regulatory mechanisms. In line with this, legislation for WSM can create a framework for necessary integrated management by providing the context for private, public, and individual resource-related activities. It can also clarify for example, the role and responsibilities of involved government agencies and other stakeholders, formalize the process of resource allocations and transfer, and provide a secure legal status for various users of water and land resources.

Regulations are the tools of monitoring and enforcing the instituted laws, by-laws, rules, agreements, and standards. They typically deal with aspects related to the following concerns: water and land-use rights and restrictions; development of different water sources and basins; groundwater extraction standards and monitoring; standards of water supply and distribution services; water charges and cost recovery; fiscal instruments such as subsidies, user fees, taxes, financial penalties, etc.; water quality and other environmental and health standards; maintenance and safety of water facilities, e.g. dams, water conveyance networks, etc.; monitoring techniques and tools of all established services, including technical, quality, environmental, and health standards; and monitoring of the established financial management tools.
LMB countries share a similar legislative structure. They all have a hierarchy of legal documents that includes a constitution as the supreme law of the country, with laws and regulations at subsequent levels below. Local rules and regulations represent the lowest level within this legislative hierarchy, reflecting the decisions that are taken by communities on the future management of local resources in watersheds, but unfortunately they often only exist informally and are not officially recognized. It is because of this situation that national legislation often contradicts these local rules, which in many cases results in conflicts between the local resource users and the authorities.

All four LMB countries have taken steps to incorporate the concept of WSM into their legislative framework. Laos for example has a ‘Prime Ministers Decree on Establishment and Activities of River Basins’. But up to now there are no specific regulations concerning sub-river basins/watersheds. In Cambodia a Royal Decree on WSM is already in place since 1994/95, but it focuses on the role of forestry in WSM. The country now awaits the promulgation of a sub-decree on River Basin Management (RBM), which will further specify the legislation on this issue. Based on the Royal Decree on WSM and the draft Sub-Decree on RBM a Code of Conduct on Watershed Management has been launched in April 2011, which provides a voluntary basis for the sustainable management of watersheds. Principles and guidelines for managing watersheds and the roles and responsibilities of different stakeholders (see next section M2S2) are described. In addition, the Code of Conduct promotes the integration of WSM activities with relevant sectors (see Module 6).

However there is still a need for improvements especially concerning the relevant sector policies. Legislation may need to be amended so that it is consistent with emerging national policies. Additionally it may also need to include or place stronger emphasis on the core elements and principles of WSM, such as, among others, its balancing role, the value of water and land resources, the role of women in resource management, the sustainability of resource use, and upstream-downstream linkages.
SESSION M2S2: ANALYSING THE INSTITUTIONAL FRAMEWORK FOR WATERSHED MANAGEMENT

Training objectives of this session

By the end of the session, the participants are able to:

- Analyze the organizational and institutional framework for watershed management,
- Identify potential conflicting interests between sector agencies and clarify conflict resolution procedures,
- Clarify options for cross-sector coordination at national and sub-national level, and
- Assess the needs for organizational and institutional development regarding watershed management in the Lower Mekong Basin countries

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<tr>
<td>Handouts</td>
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</tr>
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</table>

Session Guide

1. Handout M2S2H1 and the links to the Resource Kit provide background information for the trainer to understand the organizational/institutional framework in the LMB to facilitate the discussion during this session and provide information and clarification for the participants, whenever needed.

2. Start the session by introducing the objectives of this session and give a short introductory presentation.

3. Invite the participants to work in groups and ask them to discuss the lessons that can be drawn from the participants' own experiences concerning institutions/organizations for managing natural resources, including water:
   - Which institutions/organisations for managing natural resources do you know?
   - How have these institutions/organisations been developed? Who took the lead in initiating the idea?
   - How are these institutions structured? How are they linked with other government agencies?
   - Are they effective and why or why not?

4. Invite each group to present their results in the plenary and facilitate a discussion on open questions and comments.
5. Ask the participants to return to their groups and discuss the following questions:

- What are potentially conflicting interests between different sector agencies (e.g. Energy and Mining, Agriculture, Forestry and Fishery, Water, Environment, etc.) concerning watersheds?
- Which procedures do you know, which could help to resolve such conflicting interests?
- Do you think the institutional/organisational framework for WSM that currently exists in your country is adequate for an effective management of watersheds and the resolution of conflicting interests?
- Please describe the existing institutional/organisational framework. If you feel that it is adequate, explain why. If you feel that it is not adequate, explain how it could be improved?
- Do you think it's necessary to have an independent institution/organization for the management of watersheds? What would be the pros and cons of an independent institution/organisation?
- Why and on which levels should it be established: national level, sub-national, and/or watershed level?

6. Invite each group to present their results in the plenary and facilitate the discussion of open questions and comments.

7. Summarize the main learning points and check whether the participants reached the training objectives of this session.
In the past, sector agencies (for instance, in hydropower, irrigation, mining, industry, or navigation) have followed their own goals and objectives without any real consideration of water related impacts on other sectors, and with very limited multi-agency coordination and consultation.

Each of the four Lower Mekong Basin countries has now a specified agency or ministry responsible for water resources management and has tasked them to identify policy gaps in institutional and legal frameworks and to put forward recommendations to reduce them.

If a national policy defines how river basin management is to occur and includes the creation of river basin organisations, such as in Thailand and soon in Viet Nam and Laos, then it is possible to use this approach to basin management at the watershed level and develop some form of coordination mechanism between the districts and/or provinces in the watershed using the regulations that exist for the higher basin level. In these circumstances, a watershed institution, such as a watershed committee or a sub-river basin organisation, is likely to receive its mandate from the river basin organisation.
SESSION M2S3: UNDERSTANDING WATERSHED MANAGEMENT AS A PART OF INTEGRATED WATER RESOURCES MANAGEMENT

Training objectives of this session

By the end of the session, the participants are able to:

- Understand the concept of Integrated Water Resources Management (IWRM) and its main principles, and
- Assess effective and practical policy, legal and institutional frameworks for IWRM and IWSM.

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<td>Handouts</td>
<td>M2S3H1 – Policy Principles of Integrated Water Resources and River Basin Management, M2S3H2 – Creating a National Strategy for Water Resources Management</td>
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Session Guide

1. Divide the participants into small groups. Ask each group to read handout M2S3H1 and to use the following questions to analyse the Dublin Principles:
   - What are the key elements within the Dublin Principles? Why are these elements needed?
   - What is missing? Why?
   - What are the institutional arrangements that could support applying these principles?
   - What are the implications for these elements? Advantages and disadvantages.
   - Who is supposed to apply these principles?
   - How can we link with policy, legal, and institutional frameworks in our country? Provide examples.

2. Invite each group to present their results in the plenary and facilitate a discussion about open questions and comments.

3. Explain that IWRM should be considered as an ideal situation, that may be very difficult to reach, but which is a very worthwhile goal. Highlight examples of existing institutional arrangements.

4. Facilitate a discussion about institutional set ups and coordination necessary to instigate and sustain operational IWRM.

5. Explain the general pattern of national IWRM strategy formulation in the LMB countries based on handout M2S3H2.

6. Invite the participants to work in groups and ask them, if they can provide evidence of commitment to IWRM in their countries. Ask them to explore through such evidence the main principles and processes of IWRM in their countries. The following guiding questions can be used for the analysis:
   - Who is doing what? Which institutional settings are available and which are missing?
   - What are the advantages and disadvantages of having such institutional settings?
   - Is it necessary to improve the existing institutional settings to support effective IWRM and how could they be improved?

7. Invite participants to present their results in the plenary and further discuss the following questions:
What are the opportunities of using the IWRM approach for the formulation and implementation of IWSM policy in their countries? and

How does this link to the three pillars of IWRM, which are also relevant for IWSM?

8. Conclude the session by clarifying that IWRM is the theoretical framework under which IWSM is a practical application or a tool.
DUBLIN PRINCIPLES

The policy principles that guide the legal and institutional reform process towards IWRM on the international platform were strongly advocated at the International Conference on Water and the Environment in Dublin in 1992. During this conference after a thorough process of consultation, the influential Dublin Principles were produced and adopted by the member countries. The Dublin Principles ultimately resulted in the Fresh Water Chapter (18) of Agenda 21 of the United Nations Conference on Environment and Development and in the influential World Bank Policy Paper on Water Resources Management. The principles are:

- Water is a finite and vulnerable resource, essential to sustain life, development, and the environment
- Water development and management should be based on a participatory approach, involving users, planners, and policy-makers at all levels
- Women play a central role in the provision, management, and safeguarding of water
- Water has an economic value in all its competing uses, and should be recognized as an economic good

Associated key concepts in IWRM are: an inter-sectoral approach; representation of all stakeholders; all physical aspects of the water resources; sustainability and environmental considerations.

Subsequently, international consensus progressed towards full acceptance of water resources management in an integrated way emphasizing integrated planning, stakeholder participation, economic pricing, cost recovery, decentralization, public-private partnerships etc.

A summary of the present policy principles derived from the most recent international deliberations and their practical implications is presented below. The principles are subdivided into principles of the first and second order. Principles of the first order are not negotiable, principles of the second order and their respective implications could differ from time to time and from place to place.

First order:

- Protection of all life: water is a basic need for every form of life with no substitute
- Sustainability of the resource base: preservation of the resource base – control of floods, erosion control, pollution control
- (Inter)national stability: equitable water distribution – taking care of all relevant interests
- Precautionary principle: intergenerational equitable use

Second order or derived principles:

- Water is inseparable: (integrated approach) – water management on hydrological boundaries and management of water quantity, water quality, and environmental integrity
- Economic use: water is an economic good – cost recovery through water pricing, ‘polluter pays’ principle; tradable water rights
- Efficient use: demand management
- Decision making at the lowest appropriate level: (subsidiary) functional decentralization
- Stakeholder participation: platform creation

KEY CONCEPTS

Water management on hydrological boundaries: Water resources management on hydrological boundaries is not a new phenomenon. It has existed since ancient times whenever serious water competition arose. Under other physical circumstances the need for communal flood control always delivered a sound breeding ground for institutional upstream-downstream arrangements. In recent times the inability to manage water quality or to preserve environmental integrity and to sustain environmental flows offered a new dimension. It is at present virtually impossible not to organize water resources management in an integrated manner and on hydrological boundaries. The need for water management on hydrological boundaries is mainly triggered
by the growing competition for water or by the need to cooperate in an upstream-downstream relationship for flood control or both. For an institution operating on administrative boundaries, not coinciding with the boundaries of the river basin or catchment, it is highly cumbersome to conduct water allocation and priority setting or to carry out flood control. Any management action will always be constrained by what happens upstream or downstream. A system of water management on administrative boundaries will induce the respective authorities to either monopolize the water supply sources within their area and to transfer the problem of flooding downstream. The setting of priorities for water allocation in an equitable and efficient way other than on hydrological boundaries is by definition physically impossible. It is, of course, very wise to harmonize administrative and hydrological boundaries for the sake of administrative simplicity. However, water necessarily has to be managed on hydrological boundaries, because water simply tends to flow down and it does not stop at the boundary of the district or region. This is both valid for surface water and for subsurface water, which together form an inseparable entity of the hydrologic cycle.

**Integrated planning:** The complexity of the physical river system, the exchange of groundwater and surface water and vice versa and the continuous interaction among environmental elements is a physical imperative. To be effective, water resources planning should consider all these interactions. The fact that different elements of the water resources management function are implemented by different sectors and through different disciplines is a complicating factor, which can only be tackled through a holistic approach.

Besides, water resources planning should consider and prioritize all relevant societal water uses in their spatial distribution. A fine-tuning between consumptive uses (domestic, industrial, agricultural water supply) and non-consumptive uses (power supply, fisheries, recreation, and nature conservation) is indispensable in more complex systems. A system of integrated planning is needed in which water quality, water quantity, and environmental integrity are managed in an integrated way.

**Cost recovery:** An increasing need for any government, but especially for governments of developing countries, is to recover the costs of the services of water resources management. The various social and physical interdependencies, the need for transparency in the link of cost recovery and service level have provided new strong triggers for the establishment of integrated river basin management. Cost recovery is not a very popular measure, but it is very conducive to reaching acceptable service levels and highly necessary for fostering economic sustainability. Effective river basin management based upon (financial) government allocations only is nowadays barely imaginable both for financial reasons and for reasons of effectiveness. The dependence on the national budget does not stimulate any development of functional responsibility at the level of the river basin. Moreover, counterproductive political interference remains a likely scenario in this case. Payment for the service of managing and providing raw water and the subsequent ploughing back in to the same service is a necessary tool. This link has to be made very transparent in order to establish the mechanism of combining interest, payment, and having a say; in fact, the characteristic mechanism under integrated river basin management. The water price is an effective tool in reducing overconsumption and pollution of water.

**Public private partnerships:** Public private partnerships (or private sector participation) are widely perceived to offer effective solutions to complement or even replace public functions of water management and water supply. There are many different modalities in which public-private partnerships can be shaped ranging from simple short-term management contracts to complex concessionary relations in which the complete function of drinking water is delegated to the private sector for a long period (up to 30 years). For each situation a separate assessment has to be made on which modality is suitable for the specific circumstances. For each modality a specific suitable regulatory framework has to be in place.

Though the justification for public-private partnerships can also be manifold, there are no guarantees that privatization per se will actually yield the desired performance improvements. Simply converting a public sector monopoly into a private one provides no guarantee for effective operation or appropriate investments to respond to consumer demands without proper arrangements for regulation. An enabling institutional environment is needed. There are many different modalities to shape public-private partnerships.

**Institutional arrangements in IWRM:** This refers to a set of working rules that is used to determine who is eligible to make decisions in some arena, what actions are allowed or constrained. Further, the rules describe what procedures must be followed, what information must or must not be provided, and what payoffs will
be assigned to affected individuals. The institutional development in IWRM is a cyclic development process to move from an identified present water resources management situation to some desired IWRM situation. The desired IWRM situation is a compromise between the present and an ideal IWRM situation because an instantaneous complete introduction of IWRM is an unrealistic and maybe undesirable expectation. This compromise will be the result of a negotiation process in which policy-makers, water resources and water utility managers, and stakeholders are involved. The outcome will be determined by technical, financial, and political attainability under prevailing socio-economic conditions. With changing conditions the desired IWRM situation will change.
Most countries in the Mekong region are working to develop comprehensive policies to cover all aspects of Integrated Water Resource Management (IWRM), under which watershed management processes can exist. Usually this involves developing a national water resources policy and from this a National Water Resources Strategy (NWRS) that seeks to guide all the water related agencies in how they plan and manage their activities such that good water management processes are followed. The NWRS will also provide clear procedures that will show how interagency coordination should occur at the river basin and below levels, such as watershed, and guide how water resources development opportunities on a river basin and province basis can be balanced with the level of water resources protection that should be maintained.

For a NWRS to be successful in achieving greater coordination amongst all relevant agencies and sectors, it must:

- cover all aspects of integrated water resources, and river basin management (of which watershed management is a key part);
- clarify the institutional coordination arrangements that should apply across sectors, stakeholders and river basins;
- provide guidance on legal, regulatory, technical, planning and management aspects; and
- be developed through a highly participatory process where all agencies and key stakeholder groups are involved. Limited participation means limited acceptance.

A possible process for creating a NWRS is shown in the Figure 5 (see next page).
Although each country in the Mekong region is following its own particular approach according to its administrative and cultural systems, there is a general pattern that follows a connected series of tasks:

a) Review of national goals, objectives and policies to identify areas and activities related to water resources management (socio-economic development plan, poverty reduction strategy and various sector policies, strategies and laws).

b) General overview of the water resources situation in the country to identify distribution and variability of water quantity and quality for both surface water and groundwater, as well as a review of water related issues in terms of impact on areas such as poverty reduction and environmental protection.

c) Integration or consolidation of the water resource related areas and activities from task a) with the limitations and opportunities concerning the water resources and their distribution and impacts from task b), into more specific national water resources goals and targets.

d) Identification and adoption of key water resources management components that represent the major areas of water resource management, and stress where the main attention and effort must be given to achieve the specific water resource goals and targets. This should include water resources coordination issues such as multi-agency river basin and watershed management processes.

e) Specification of clear policy statements for each of the key components from task d) describing the objectives of the Government and how it will be done. If clear policy statements do not already exist,
a multiagency working group will develop draft policies for government or minister consideration and develop options for how these policy statements could be implemented. This is likely to be the case for watershed management arrangements.

f) Identification of key activity areas within each component that are consistent with the particular policy statements and represent the areas where present or emerging weaknesses, problems or difficulties must be addressed.

g) Preparing activity profiles for each of these activity areas that clearly spell out what actions and projects are needed to overcome weaknesses and to guide ministry or province specific plans towards better achievement of coordinated and integrated water resources management.

River basins and watersheds are key component areas for any NWRS. This process should lead to the endorsement by the government of a set of procedures that define the responsibilities of national agencies in these water related areas, how to determine when a watershed has sufficient problems to require some form of multiagency or multi-administration coordination, how provinces and districts should work together to seek balanced solutions to watershed problems and how these solutions can be incorporated into the normal district and province planning processes.

Figure 6 (see next page) illustrates the cyclical nature of how watershed management policies, strategies and guidelines at the national and local levels interlink to actual planning at the watershed level in relation to integrated watershed management. Frequent audits check effectiveness and whether the system is right or needs to be improved.
Figure 6 - Linking National WSM Policies to District level Planning

**National level**

**GOVERNMENT**
National Socioeconomic and poverty reduction goals and targets, sector and resource policies

**Line Ministries** identify sector goals and targets consistent with national goals, advise provinces of sector planning goals and constraints, and review plans.

**Province Level**

Provinces develop socioeconomic and environmental plans based on sector strategies and district plans and submit them to central agencies for review and approval (WSM Agency may be asked to endorse)

Provinces check to ensure WSM processes and guidelines have been followed, and actions included in district plans, where possible. Provinces collate all district plans into province plans and certify that WSM guidelines have been followed.

**District Level**

Districts incorporate actions/solutions from the approved Plan of Action in annual plans

Developed as part of the NWRS and managed by the WSM Agency (resource management agency with RBM/WSM responsibilities)

**National WSM policies, strategies, guidelines**

WSM Agency audits compliance with WSM guidelines and adjust them if needed

WSM Agency advises Provinces (or RBO's if so designated) of national guidelines and requirements. Province WSM Agency oversees processes, identifies priority watersheds and convenes district agencies.

Districts within priority watershed follow national guidelines and develop WSM planning process, a watershed committee or coordinating group and a Plan of Action. (with the assistance of WSM District Agency)
In Module M1 it has been stated that watersheds as they are defined represent the best spatial unit for the sustainable management of a river basin's resources. But not all watersheds need to be managed because they are still in a natural status. Three elements should be considered to decide where watershed management should be applied: A first answer to this question would be that watershed management must be applied to “critical watersheds”. What are “critical watersheds”? What are criteria for their selection? Is there a need for further differentiation?

Training objectives of this module

By the end of the training module M3 the participants are able to:

• Understand the concept of “critical watershed” and define criteria for the classification of watersheds,
• Understand the concepts and methods of watershed classification,
• Determine the risk levels of watersheds, and
• Classify watersheds according to their risk level as basis for the selection of an appropriate coordination arrangement for the future management.

This training module is divided into two complementary training sessions

Session M3S1: Defining criteria for the classification of watersheds
Session M3S2: Watershed classification and determination of the watershed risk levels
SESSION M3S1: DEFINING CRITERIA FOR THE CLASSIFICATION OF WATERSHEDS

Training objectives of this session

By the end of the session, the participants are able to:

• Understand the concept of “critical watershed”, and
• Define criteria for the classification of watersheds.

Session Info

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| Materials  | • Pin boards and flip chart stands  
|            | • Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens |
| Links for more info | http://wiki.mekonginfo.org/index.php/122_Critical_Watersheds_and_Watershed_Classification  
|            | http://wiki.mekonginfo.org/index.php/432TA_Sub_Basin_Selection_Criteria_Example_Ping_Tha |
| Handouts   | M3S1H1 – Defining critical watersheds  
|            | M3S2H2 – Defining criteria for the selection of watersheds |

Session Guide

1. Start the session by explaining the definition of “critical watersheds” based on the information in handout M3S1H1 and the Resource Kit (see the links above or the CD).

2. Ask the participants to share their own experiences and views on when the state of a watershed can be considered to be critical.

3. Explain that there are two broad sets of criteria that can be used to classify watersheds: static criteria and dynamic criteria. Give a short presentation using the information from handout M3S2H2 and the Resource Kit (see the links above or the CD).

4. Ask the participants the following questions:
   ✓ Do you think the two sets of criteria are sufficient to classify critical watersheds?
   ✓ If not, do you have any suggestions for additional criteria?
   ✓ Why would you add these additional criteria?

5. Remind the participants that using a combination of static and dynamic criteria to classify critical watersheds seems more appropriate than solely using static criteria. The logic here is simple: watershed functions are impacted by human interventions that are undertaken to use natural resources. Dynamic criteria allow the direct or indirect assessment of such human interventions and influences. They indicate areas where human activities actually or are very likely to influence and critically impair essential watershed functions. Watersheds identified as critical – using static criteria alone – do not necessarily require watershed management interventions. For instance, there would be little scope for watershed management interventions in watersheds with steep slopes and without forest cover, but which are otherwise in a stable condition due to the absence of human-induced changes.

6. Summarize the main learning points and link the lessons learnt with the next training session.
It is most likely for watershed management to achieve a positive and measurable impact in watersheds where essential watershed functions are already critically impaired or are likely to become critically impaired through human intervention. These are for example watersheds where there already is, or there is likely to be, a significant negative impact on water quality and/or quantity. Such watersheds can be considered to be "critical". Negative impacts on water quality might come from increased erosion through deforestation, from excessive use of agricultural inputs, or from industrial pollution, just to name a few causes in an ascending order of development. Forest conversion on a large scale and badly managed can lead not only to erosion but also to increased incidences of seasonal floods on the one hand and extremely low levels of water flow on the other.
HANDOUT M3S1H2: DEFINING CRITERIA FOR THE CLASSIFICATION OF WATERSHEDS

A number of approaches exist to identify watersheds in which functions are critically impaired or likely to become impaired in the near future. These approaches usually establish a classification system relying on the use of static and dynamic criteria (see examples in table 3). Static criteria are criteria that do not change easily over time while dynamic criteria are prone to change quickly over time and are typically expressed as rates of change. Some political factors can affect the vulnerability of a watershed and should also be considered.

Table 3 - Example of static, dynamic and political factors used for the identification of critical watersheds

<table>
<thead>
<tr>
<th>Factors</th>
<th>Examples of factors</th>
</tr>
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<tbody>
<tr>
<td>Static factors</td>
<td>Slope</td>
</tr>
<tr>
<td></td>
<td>Elevation</td>
</tr>
<tr>
<td></td>
<td>Vulnerability to erosion</td>
</tr>
<tr>
<td></td>
<td>Absence of permanent forest cover</td>
</tr>
<tr>
<td>Dynamic factors</td>
<td>Water quality and quantity</td>
</tr>
<tr>
<td></td>
<td>Land use changes</td>
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<tr>
<td></td>
<td>Forest degradation</td>
</tr>
<tr>
<td></td>
<td>Population growth</td>
</tr>
<tr>
<td></td>
<td>Hydropower development</td>
</tr>
<tr>
<td>Political factors</td>
<td>Cross-border issues</td>
</tr>
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</table>

Whatever the approach chosen, access to recent and reliable geographical information is required to identify critical watersheds using the criteria that have been agreed upon.

The watershed functions are mostly affected by human interventions using natural resources. Such human induced changes can best be measured using a combination of static and dynamic criteria.
SESSION M3S2: WATERSHED CLASSIFICATION AND DETERMINATION OF WATERSHED RISK LEVELS

Training objectives of this session

By the end of the session, the participants are able to:

- Understand the concepts and methods of watershed classification,
- Determine the risk level of a watershed, and
- Classify watersheds according to their risk level as basis for the selection of an appropriate coordination arrangement for the future management.

Session Info

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| Links for more info | http://wiki.mekonginfo.org/index.php/122_Critical_Watersheds_and_Watershed_Classification  
http://wiki.mekonginfo.org/index.php/432CS_Prioritisation_Sub_Watersheds_Nam_Neun_Lao |
| Handouts | M3S2H1 – Determining the Risk Levels of Watersheds  
M3S2H2 - Watershed Classification in Thailand |

Session Guide

1. Start this training session by giving a short presentation on watershed classification. Explain that watershed classification is a method of dividing a landscape into different watershed classes on the basis of selected criteria. Use the information in the Resource Kit to prepare the presentation (see the links above or the CD).

2. Ask the participants to read handout M3S2H1 and raise comments, based on their own experiences, on what type of criteria the risk classification should be based on. Write all the comments on a flip-chart. Facilitate a discussion based on the comments from the participants.

3. Introduce the MRC risk classification for watersheds (see the links above).

4. Explain that there are various ways in which different countries classify watersheds. For example, in Vietnam watersheds are classified into 3 classes: less critical, critical, and very critical. This method of classification is based on environmental sensitiveness and degradation. The government is trying to protect, regenerate, and improve the forests in those watersheds, which are in the following 2 classes: very critical and critical. Another example is from Thailand, on which the participants should work in more detail.

5. Invite the participants to work in groups and ask them to read handout M3S2H2 on watershed classification in Thailand.

6. Ask the groups to point out implications of the watershed classification system in Thailand, land-use planning initiatives, and policies at the national level. Ask the groups to propose ideas on how to improve the Thai watershed classification system.

7. Summarize the main learning points and check whether the participants reached the training objectives of this session.
Determining the level of risk to the health of a watershed will be crucial for deciding which form of coordination arrangements will be the most appropriate to manage a particular watershed. Once the criteria for the selection of watersheds have been defined, the agency responsible for watershed management (usually the national agency responsible for water resources management) should assess all river basins and sub-basins and identify the level of risk to the health or condition of the watersheds’ resources.

When the guidelines for the risk classification have been set, provincial divisions of the responsible agency could then similarly assess watersheds within the priority basins or watersheds that might have emerging problems from development plans. These initial assessments would give an indication of the risk to the health of watersheds and the type of coordination arrangements that could be necessary.

The MRC has developed a risk classification for watersheds that is based on the degree of deforestation, land use changes over a recent period and increasing population pressures. However, it should be complemented by other factors, such as socio-economic plans (high development might mean high risk), water quality trends, or strategic indicators and guidelines from a higher level sub-basin plan, in developing a suitable risk classification. The national water management agency should develop this assessment process together with the other water related national agencies. The countries of the Lower Mekong Basin have developed their national classifications or will do so in the near future. For the sake of clarity, in this manual, watersheds are split in three categories of risk: low, medium and high.
In January 1975 the Ministry of Agriculture and Cooperatives in Thailand proposed to the Cabinet the criteria for classifying the Mae Ping Watershed in the north into three classes. These proposed criteria assigned about 60% of high altitude land (above 700 metres above sea level) of the Mae Ping Watershed as Class 1. It was also recommended that areas in this class be protected from any utilization of natural resources except rehabilitation for watershed protection. All residents occupying this zone would be evacuated. Watershed classes 2 to 3 were proposed for lower land that could be utilized for mining, forestry, agriculture etc. after approval by a committee established by the Cabinet. Since there were many mining operations and hill-tribe villages already in areas proposed as Class 1, considerable conflict and controversy developed among government agencies. The Ministry of Industry, which is responsible for mining operations, thus requested for the proposed criteria for watershed classification to be revised.

A new Watershed Classification Committee (WCC) was appointed by the Cabinet in October 1979. The National Economic and Social Development Board provided funds to Kasetsart University through the Office of the National Environmental Board (ONEB) to conduct a watershed classification project. The ONEB retained a panel of technical experts (the WCC) for advice on technical aspects of the project. While the project is mainly funded by the Royal Thai Government, funds for technical assistance have been provided by the Government of Sweden, through the International Union for Conservation of Nature (IUCN) Centre.

The term Watershed Class (WSC) used by the WCC is synonymous with land-use planning for watershed areas. It is an effort to make human use of land as compatible as possible with the features of the environment and to mitigate on-site and off-site effects of use. Specific objectives are:

- Develop a method for assigning WSC numbers to land areas,
- Distinguish between areas to be permanently protected as forest watershed cover or used for commercial forests, and areas open for utilization of all resources or conversion to agronomic uses, and
- Immediately obtain WSC maps of all watersheds in the country using the existing data and a method of manipulating the data to provide numerical classifications of lands into watershed classes.

Based on facts and figures among government agencies, the WCC (1983) classified area in the watersheds into five classes using Slope, Elevation, Landform, Soil, Geology, and Forest as modelling parameters. The characteristics of each WSC can be described as follows:

- **WSC 1**: Protected or conservation forest and headwater source – This class is divided into two sub-classes:
  - WSC 1A: Protected forest areas including the headwaters of rivers – The areas are usually at high elevations and have very steep slopes and should remain under permanent forest cover.
  - WSC 1B: Areas that have similar physical and environmental features to WSC 1A, however portions of these areas have already been cleared for agricultural use or occupation - These areas may be fallowed or cultivated; they therefore require special soil conservation protection measures. Where possible, they should be replanted to forest or maintained under permanent agro-forestry.
- **WSC 2**: Commercial forest – These areas are designed for protection and/or commercial forests where mining and logging will be allowed within legal boundaries, usually at high elevations with steep to very steep slopes. Landforms usually have less erosion than WSC 1A and WSC 1B. The areas may be used for grazing or crop production if accompanied by appropriate soil protection measures.
- **WSC 3**: Fruit-tree plantation – These areas cover uplands with steep slopes and less erosive landforms. They may be used for commercial forests, grazing, fruit trees or certain agricultural crops with a need for soil conservation measures.
- **WSC 4**: Upland farming – This class describes those areas of gentle sloping lands suitable for row crops, fruit trees, and grazing with a moderate need for a few soil conservation measures.
- **WSC 5**: Lowland farming – WSC 5 has gentle slopes or flat areas needed for paddy fields or other agricultural uses with few restrictions.
Presently, most of the concerned agencies cautiously consider their land utilization by avoiding classification as WSC 1A. Mining in areas classified as WSC 1A is not allowed. Reservoir construction for any purpose has also tried to avoid inundation of WSC 1A.

As more pressure is expected to increase in the next 10 to 20 years from increasing population, the regulation on watershed classification would be impractical for the agencies concerned and be ignored by the watershed occupants. The intensive or comprehensive land-use planning for small watersheds using communities as a target area is included in the 8th National Economic and Social Development Plan (from 1997 to 2001). The patterns of land-use plans in such a planning unit, however, would be more or less the same as those assigned in watershed classification but would be modified according to what the community needs, but should not exceed its carrying capacity. For those planning units where forest in the headwater source is denuded, reforestation for soil and water conservation must be undertaken to reduce soil erosion and improve the ecological environment. On the medium slopes in the planning unit, fruit trees and fuel wood species should be planted instead of commercial forest. In the lower part of the slope, which is gentle and has a thick soil layer rich in water resources, farmlands would be allowed with storage reservoirs, ponds, and check dams.
MODULE M4 – CREATING A DIALOGUE

Once it has been possible to determine the risk levels of watersheds, it is necessary to determine what form of coordination arrangements might be necessary. If a watershed presents a low level of risk, an informal coordination forum such as an annual workshop might be all that is needed. However for a watershed presenting high risks, more formal arrangements will be required, usually in the form of a Watershed Management Committee with an endorsed mandate and membership. In any case, an appropriate stakeholder involvement will be the key to a successful watershed management.

Training objectives of this module

By the end of the training module M4 the participants are able to:

• Determine appropriate coordination arrangements for different risk levels of watersheds,
• Understand the importance of clearly defining the mandate of the Watershed Management Committee,
• Identify key stakeholders in a watershed area and decide how to involve them in the watershed planning and decision making processes, and
• Understand the importance of considering the interests of marginalized groups (e.g. women and ethnic minorities) in watershed planning and management processes.

This training module is divided into four complementary training sessions

Session M4S1: Linking risk levels and coordination arrangements for watershed management
Session M4S2: Clarifying the mandate of the watershed management committee
Session M4S3: Identifying the stakeholders and deciding how to best involve them
Session M4S4: Gender and watershed management
SESSION M4S1: LINKING RISK LEVELS AND COORDINATION ARRANGEMENTS FOR WATERSHED MANAGEMENT

Training objectives of this session

By the end of the session, the participants are able to:

- Determine appropriate coordination arrangements for different risk levels of watersheds.

Session Info

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</thead>
<tbody>
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<td>Methods</td>
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<td>Aids</td>
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</tbody>
</table>
| Materials  | • Pin boards and flip chart stands  
|            | • Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens |
| Handouts   | M4S1H1 – Linking Risk Levels and Types of Mandates for Watershed Coordination |

Session Guide

1. Explain the training objective of this session and use handout M4S1H1 for a short presentation. Explain that the required coordination arrangements for watershed management depend on the risk level of each watershed. There is no standard solution that is suitable for all watersheds. Different risk levels require different coordination arrangements.

2. Invite the participants to work in groups and ask them to exchange their experiences and views on appropriate coordination arrangements for the management of individual watershed areas. Ask them to discuss, which coordination arrangement would be most appropriate for:
   - low risk watersheds,
   - medium risk watersheds, and
   - high risk watersheds.

3. Invite each group to present their results in the plenary and facilitate a discussion on open questions and comments.

4. Summarize the main learning points and check whether the participants reached the training objective of this session.
It will be best to adopt the simplest set of arrangements to address the particular level of problems in a watershed. Each risk level of a watershed is likely to need a different type of coordination arrangement.

In low risk watersheds, the involved districts should share their draft 5-year and annual plans and ask for comments from each other. No formal arrangements are necessary. However, each district should establish a coordination mechanism bringing all water related agencies together from time to time, to jointly discuss water and natural resource issues. This will ensure that coordinated comments on the exchanged plans will be provided by each district.

Should the risk situation change, any district head can propose the modification of the risk level (e.g. from low to medium) to the provincial Water Resource Management (WRM) Agency.

For medium risk watersheds, a more specific approach is required as these are watersheds where future uncontrolled development is likely to lead to resource degradation. An annual watershed conference or workshop amongst all districts in the watershed should be organised. Key officials from the water, land, forest, and agriculture agencies should participate. These meetings should be convened by the provincial WRM Agency and authorised by the Province head. During the annual meetings the development plans of all concerned districts should be discussed. The development trends of watershed health and condition should be assessed. The assessment should be based on data collected from official records and information as well as community/stakeholder surveys if deemed necessary. The risk level should be adjusted if the observed trends indicate a change of the watershed risk.

For high risk watersheds, a much more formal process with the creation of a Watershed Management Committee is needed. The committee should have a broad membership of officials from each district in the watershed and a detailed operating mandate. The establishment of the committee should be approved either by the Province head or by an overarching River Basin Organisation (RBO) if the watershed is located within an officially declared river basin. The need for extensive stakeholder consultations, data and information collection and analysis as well as the assessment of important watershed issues and potential solutions should be specified. In addition, the responsible agencies for the implementation of necessary actions as well as monitoring and reporting arrangements should be clarified. To start the process the provincial WRM Agency should first call a workshop similar to the one for medium risk watersheds to review all the trends and issues for the watershed and get wide agreement for the more formal approach.

**Figure 7 - Risk level and mandate**

<table>
<thead>
<tr>
<th>High risk</th>
<th>Medium risk</th>
<th>Low risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>A formal process is necessary</td>
<td>Annual watershed workshop with key officials from the water, land, forest, and agriculture agencies</td>
<td>No formal arrangements are necessary</td>
</tr>
<tr>
<td>Creation of a watershed management committee</td>
<td>Assess the various district development plans in more detail</td>
<td>Share the draft 5-year and annual plans with the other districts</td>
</tr>
<tr>
<td>Broad membership of officials from each district</td>
<td>Assess the trends shown in watershed health and condition</td>
<td>Water, land, forest and agriculture agencies to provide comments</td>
</tr>
<tr>
<td>Detailed mandate approved by Province or by River Basin Organisation</td>
<td>The workshop could recommend modification of the risk level</td>
<td>Any district head could propose the modification of the risk level</td>
</tr>
</tbody>
</table>
If a national ministry or agency is responsible for developing policy strategies and guidelines for river basin and watershed management, then its line departments at provincial level would be responsible for implementing the process that leads to categorising the watersheds and creating the appropriate coordination arrangements.

* This is a more specific title for the respective chapter in the INTEGRATED WATERSHED MANAGEMENT MANUAL FOR PRACTITIONERS: Linking risk levels and types of mandate for watershed coordination.
SESSION M4S2: CLARIFYING THE MANDATE OF THE WATERSHED MANAGEMENT COMMITTEE

Training objectives of this session

By the end of the session, the participants are able to:

- Understand the importance of clearly defining the mandate of a Watershed Management Committee, and
- Assess the roles and responsibilities of a Watershed Management Committee to enhance the effectiveness of watershed planning and management processes.

Session Info

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<tr>
<th>Time</th>
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| Materials  | • Pin boards and flip chart stands
            | • Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens |
| Links for more info | http://wiki.mekonginfo.org/index.php/301TA_Mandate_of_Siem_Reap_Watershed_Committee
| Handouts   | M4S2H1 – Clarifying the Mandate of the Watershed Management Committee |

Session Guide

1. Explain the learning objective of this training session and use handout M4S2H1 and the ‘Code of Conduct on Watershed Management in Cambodia’ (see link in the list above or CD) for a short introductory presentation.

2. Ask the participants to read the case study material: ”Mandate of the Siem Reap watershed management committee” (see the links above or the CD) and discuss in groups to formulate answers to the following questions:
   - How does the mandate define the authority of the watershed committee?
   - Are the roles, functions and responsibilities of the watershed management committee clearly defined?
   - Do you think it is necessary to change the mandate to ensure the effective coordination of the watershed management by the Siem Reap watershed management committee?
   - If yes, which changes would you propose and why do you think that these changes are necessary?

3. Invite each group to present their results in the plenary. Facilitate a discussion on open questions and comments. Provide feedback for each group.

4. Summarize the main learning points and check whether the participants reached the training objectives of this session.
HANDOUT M4S2H1: CLARIFYING THE MANDATE OF THE WATERSHED MANAGEMENT COMMITTEE

The status of Watershed Management Committees varies in different countries. In some countries they have the formal mandate and authority to develop plans, fundraise and manage finances, and coordinate the actions of others. At the other end of the spectrum, a Watershed Management Committee may have no formal identity or status, and be no more than an informal discussion group, which brings together different line agencies and stakeholders on an ad hoc basis. In most cases, the mandate and status of Watershed Management Committees will be positioned somewhere between these two points: they are recognised as coordinating bodies with an integrated plan for watershed management, but the authority to fund and implement activities remains within the annual budgets and work plans of each member institution.

It is the "Watershed Management Committee" which is referred to throughout this handbook as being the body that is responsible for preparing, formulating, coordinating, resourcing, and monitoring the watershed Plan of Action.

Having established a Watershed Management Committee, it is very important to ensure that it has sufficient funding, so that it is able to work. When defining the mandate, a first overview of the committee's running or core costs has to be worked out. In addition, it should be clarified where the funding should come from. How this can be done is described under Module 7.
SESSION M4S3: IDENTIFYING THE STAKEHOLDERS AND DECIDING HOW TO BEST INVOLVE THEM

Training objectives of this session

By the end of the session the participants are able to:

• Identify, who are the key stakeholders in the watershed area,
• Decide, how to involve all relevant stakeholders in watershed planning and decision making processes, and
• Understand the importance of considering the interests of marginalized groups (e.g. women and ethnic minorities) in watershed planning and management processes.

Session Info

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|            | • Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens |
| Links for more info | [http://wiki.mekonginfo.org/index.php/432TA_Stakeholder_Analysis](http://wiki.mekonginfo.org/index.php/432TA_Stakeholder_Analysis)  
| Handouts   | M4S3H1 – Identifying the stakeholders, deciding how to best involve them  
|            | M4S3H2 – Stakeholder Identification: Case Study |

Session Guide

1. Use handout M4S3H1 as background information for the preparation of this session.

2. Recall discussion in session M1S2 about stakeholders in IWSM and remind the participants that the term ‘stakeholder’ refers to all individuals, communities, private enterprises and civil societies, who have an interest in using natural resources in the watershed area or are affected by the resource utilization of others. The term also refers to those government and non-government organizations and institutions, who are concerned with planning, conservation and management issues within the watershed area.

3. Ask each participant to write down three different types of stakeholder groups in a watershed area, each group on an individual card. Encourage the participants to consider also those stakeholders who are marginalized or powerful, depending on natural resources, causing negative environmental impacts etc.

4. Collect all the cards, stick them on a pin board and facilitate a discussion on whether all the relevant stakeholders have been identified.

5. Invite the participants to work in groups and provide them instructions on how to do a ‘Venn Diagram’ exercise (get more information on the Resource Kit or the CD). Ask the participants to use the stakeholder groups that were identified during the previous exercise. Explain that the purpose of the ‘Venn Diagram’ is to analyze and illustrate the nature of relationships between the key stakeholder groups.

6. Invite each group to present their ‘Venn Diagram’ in the plenary and facilitate a discussion on open questions and comments.

7. Invite the participants to select 3 stakeholder groups, return to their groups and discuss the following questions for each of them:
   ✓ What is the potential effect of their interest in the watershed?
✓ How are they affected by the potential interest of other stakeholder groups in the watershed?

✓ How can they be involved in WSM?

8. Ask all the groups to present their results in the plenary and facilitate a discussion on their proposals.

9. Ask the participants to read the case study in handout M4S3H2. This case study is not related to watershed issues, but it illustrates the importance of considering the views and interests of different stakeholder groups. (The trainer may choose to use his/her own case study.) Facilitate the discussion and encourage the participants to share their own experiences on conflicting interests and views of different stakeholder groups and how to find a resolution in a participatory manner.

10. Summarize the main learning points and check whether the participants reached the training objectives of this session.
A comprehensive approach to watershed management is only successful if all stakeholder groups are involved in the process. This means involving them in all phases of the process - data collection and analysis, identification of water relevant issues and what these imply for various stakeholders and government administrations, what might be the solutions and what are the priorities. Whatever is decided as the most appropriate consultation approach, it must be planned and publicised so that all stakeholder groups know what is expected of them, and how they can provide their input to the overall watershed planning and management process.

In order to involve stakeholders they have to be identified and known. Different groups (ethnic, location, economic activity, gender, age) have different concerns, capacities and interests which need to be understood. Therefore, a stakeholder analysis following specific rules should be undertaken. First, all groups living or acting in the watershed that have a significant interest in water issues should be listed. Next it will be important to know their respective roles, different interests, relative power and capacity to participate (strengths and weaknesses). Some groups might easily cooperate with each other and others might tend to be in conflict with others. Based on this information a strategy of participation and integration should be developed. A variety of tools can support stakeholder analysis.

Women have less access to benefits, such as village trainings and capacity building or distribution of watershed goods and services, and tend to be marginalised. On the other hand they are bearer of a considerable amount of local knowledge and are often the first to suffer from impacts. Therefore it is necessary that institutional mechanisms are created to address gender issues.

For low risk watersheds, no specific approach for involving stakeholders is required other than what would occur during the normal district socio-economic planning processes. For medium risk watersheds, the main stakeholder groups need to be able to provide input as to trends in the health of a watershed and how this might affect livelihoods or the productive use of the resources. Information on changes in irrigation, mining development and forestry concessions might be exchanged at an informal stakeholder forum. In high risk watersheds, a formal process for stakeholder consultation is needed and the establishment of a coordination body, such as a Watershed Management Committee, with a specific mandate as described above is required. The coordination body, in turn, will be responsible for organising the consultation process with the specific stakeholders groups, such as forest concession groups, mining groups, and irrigator groups such as those covering one scheme or representing one produce type (vegetables, fruits, etc.). The intensity...
and periodicity of this consultation process will vary depending on the gravity of the issues involved.

Watershed planning and management without proper stakeholder consultation will lead to low awareness, participation and ownership of watershed management and as a consequence, a reluctance to support changes to present improper watershed practices.
The staff members of a government forest agency and members of a conservation NGO believed that the harvesting of rattan by village A was degrading the biodiversity of the forest reserve. The government decided to prohibit the harvesting of rattan in the forest reserve.

The women of village A, who traditionally harvest, process, and sell the rattan, were most affected by the proposed decision, but they had the smallest input into decision-making processes. Both the village headman and the other men of village A felt disadvantaged by the prohibition on rattan because they predicted a reduction in overall family income. They were seen to be more powerful than women because they had participated in some of the consultation meetings held by the forest agency. They had significant fears about the effect on the village children, as the money generated from sales of rattan handicrafts was a main source of income for paying school fees.

Conversely, the men from a neighbouring village (village B) did not collect or use rattan, but were seen to be more influential than people in village A. Village A accused the men of village B of providing incorrect information about rattan harvesting to the forest agency and the conservation NGO in order to gain greater support for an alternative income-generating project. The conservation NGO, which was providing technical advice on management of the reserve, and on which the government forest agency relied for financial support, was seen to be the most influential actor in determining the decision. The people in village A did not understand the NGO’s concerns about biodiversity, or how an organization that is composed of people living far away would be greatly affected by the rattan issue.
SESSION M4S4: GENDER AND WATERSHED MANAGEMENT

Training objectives of this session

By the end of the session, the participants are able to:

- Understand the term 'gender'
- Understand the importance of considering gender related aspects in watershed planning and management processes, and
- The participants have a basic knowledge of the procedures of 'gender analyses' and 'gender mainstreaming'.

Session Info

<table>
<thead>
<tr>
<th>Time</th>
<th>2,5 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td>Presentation, group exercises and discussions</td>
</tr>
<tr>
<td>Aids</td>
<td>Overhead projector or computer and LCD projector</td>
</tr>
<tr>
<td>Materials</td>
<td>Pin boards and flip chart stands</td>
</tr>
<tr>
<td></td>
<td>Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens</td>
</tr>
<tr>
<td></td>
<td>Copies of the exemplary watershed plan of action</td>
</tr>
<tr>
<td>Handouts</td>
<td>M4S4H1 - Why is gender an important issue?</td>
</tr>
</tbody>
</table>

Session Guide:

1. Ask the participants to write their own definition on what is ‘gender’ on a card. Collect all cards from the participants, stick them on the pin board and facilitate a discussion about what the participants understand under the term ‘gender’ and the experiences they have with gender related concepts.

2. Compare the understanding of the participants of the term ‘gender’ with the information in the Resource Kit (see link above or the CD: What is Gender) and present additional information if needed.

3. Divide the participants into groups, ask them to read handout M4S4H1 and discuss about their own experiences concerning the involvement of women in watershed planning and management processes. Ask them to identify:
   ✓ Potential constraints that may affect the participation of women in watershed planning and management processes,
   ✓ Potential advantages of involving women in these processes,
   ✓ Potential negative effects, if women are not involved in these processes.

4. Invite each group to present their results and facilitate a discussion on open questions and comments.

5. Based on the information in the Resource Kit (see link above or the CD: Gender Analysis) explain the basic questions, which have to be answered in a gender analysis and the tools, which can be used for such an analysis. Explain that the participants will be asked to use this knowledge during the field exercise in session M5S2.

6. Explain the meaning of gender mainstreaming in watershed management. Use the information from the Resource Kit (see the link above or the CD)
7. Invite the participants to work in groups and give them copies of the exemplary Watershed Plan of Action (see the link above or the CD). Ask them to:
   ✓ Read the Watershed Plan of Action and discuss how gender issues should be mainstreamed in watershed planning processes,
   ✓ Assess the different ways that women and men may be affected by the critical watershed issues,
   ✓ Brainstorm and identify concrete actions that could be taken to ensure that the gender issues are incorporated into the watershed planning and management processes.

8. Invite each group to present their results and facilitate a discussion on open questions and comments.

9. Summarize the main learning points and check whether the participants reached the training objectives of this session.
Women play a central role in the management and safeguarding of water resources. This pivotal role of women as managers of water resources and guardians of the living environment has seldom been reflected in institutional arrangements for the development and management of water resources.

An acceptance of this role requires positive policies to address women’s specific needs and to equip and empower them to participate at all levels, including decision-making and implementation, in ways that have also been defined by them.

It is very often the case that women are overlooked by agriculture, forestry and watershed management programs, because of the narrow view of male farmers and professionals concerning the work that women do.

Nevertheless, the evaluation of development interventions has shown that they are more successful if gender issues are considered and women participate in them. If a participatory approach is chosen, it is necessary to consider the diversity within communities and households, as well as gender relations.
MODULE M5 – ASSESSING THE FUNCTIONS OF A WATERSHED

As stated in the previous Training Modules, watersheds have three main functions: (1) ecological, (2) economic as well as (3) social functions. A successful watershed management should be based on the consolidated knowledge of:

- Factors influencing these functions,
- Importance of these functions for certain stakeholders,
- Importance and urgency to solve related problems.

Therefore, it is necessary to collect the available data and information which can be received from various water related agencies and sources like official reports, plans, and documents. In addition, stakeholder surveys should be organised to understand the opinions, felt needs, local knowledge and anecdotal evidence of the variety of all stakeholders in the watershed. Based on this data and information all water relevant issues should be identified. Their importance for the watershed management and the urgency to solve the related problems should be assessed. To reach a common understanding on critical watershed issues as well as the importance and urgency to solve the related problems, all stakeholders must be involved from the early stages of data and information collection until the final selection of water relevant issues which should be addressed in the Watershed Plan of Action.

Training objectives of this module

By the end of the training module M5 the participants are able to:

- Identify and collect all relevant data and information, which is already available in the area of the watershed,
- Conduct stakeholder surveys to complement the collected data and information, and clarify inconsistencies and gaps,
- Identify and prioritize the critical issues that are impacting on the ecological, social and economic watershed functions,
- Understand the importance of involving relevant stakeholders in this decision making process, and
- Compile a watershed profile.

This training module is divided into three complementary training sessions

Session M5S1: Collecting and understanding available data and information
Session M5S2: Organising and implementing stakeholder surveys
Session M5S3: Identifying and prioritising critical issues
SESSION M5S1: COLLECTING AND UNDERSTANDING AVAILABLE DATA AND INFORMATION

Training objectives of this session

By the end of the session, the participants are able to:

• Identify and collect all relevant data and information, which is already available in the area of the watershed, and
• Analyze the collected data and information and identify gaps, inconsistencies as well as conflicting information.

Session Info

<table>
<thead>
<tr>
<th>Time</th>
<th>1.5 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td>Presentation, group work and discussions</td>
</tr>
<tr>
<td>Aids</td>
<td>computer and LCD projector</td>
</tr>
</tbody>
</table>
| Materials     | • Pin boards and flip chart stands  
                • Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens |
| Handouts      | M5S1H1 - Collecting and Understanding Available Data and Information |

Session Guide

1. Invite the participants to work in groups and ask them to list the data and information, which they think is needed for effective watershed planning and management on cards.

2. Collect all the cards from the participants and stick them on a pin board clustering related data and information. Facilitate a discussion concerning the following questions and note the feedback from the participants:
   ✓ Would they like to add additional data and information?
   ✓ Where is all this data and information available?
   ✓ How can you verify the accuracy and correctness of the data and information?

3. Based on the information in handout M5S1H1, emphasize that it is important to analyse the collected data and information to identify inconsistencies, information gaps and/or conflicting data and information. In addition, emphasize that the gathering and analysis of available data and information is important for establishing a commonly owned and trusted basis for planning and decision-making.

4. Summarize the main learning points and check whether the participants reached the training objectives of this session.
The Watershed Committee should form a working group with members from different line departments and professional backgrounds. This working group will be responsible to collect all available data and information from various water-related agencies, official reports, plans, and documents. Especially the 5-years social-economic plans on district and provincial level but also the respective annual investment plans should be analysed thoroughly. They may contain information about actual and future developments which might affect watershed functions. Land-use plans are also a valuable source. In addition, the existing policies and regulations of different line departments should be checked, to understand e.g. how they might influence watershed functions, support or prevent intended developments.

All data and information should be compiled and analysed. Inconsistent and conflicting information as well as gaps observed during the analysis should be considered during the design of the stakeholder survey to clarify open questions. In addition, it may be necessary to verify certain data and information during field visits.
SESSION M5S2: ORGANISING AND IMPLEMENTING STAKEHOLDER SURVEYS

Training objectives of this session

By the end of the session, the participants are able to:

- Understand the purpose of stakeholder surveys, and
- Conduct stakeholder surveys in the watershed area.

Session Info

<table>
<thead>
<tr>
<th>Time</th>
<th>8 hours (including field exercise)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td>Presentation, group work, discussions and field exercise</td>
</tr>
<tr>
<td>Aids</td>
<td>Computer and LCD projector</td>
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<td>Materials</td>
<td>Pin boards and flip chart stands</td>
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<tr>
<td></td>
<td>Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens</td>
</tr>
<tr>
<td></td>
<td>Material for the field exercise</td>
</tr>
<tr>
<td>Links for more info</td>
<td><a href="http://wiki.mekonginfo.org/index.php/432TA_Stakeholder_Analysis">http://wiki.mekonginfo.org/index.php/432TA_Stakeholder_Analysis</a></td>
</tr>
<tr>
<td></td>
<td><a href="http://wiki.mekonginfo.org/index.php/117TA_Participatory_Techniques_Description_and_Application">http://wiki.mekonginfo.org/index.php/117TA_Participatory_Techniques_Description_and_Application</a></td>
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<td><a href="http://wiki.mekonginfo.org/index.php/117TA_Selected_Participatory_Techniques_Detail_Description">http://wiki.mekonginfo.org/index.php/117TA_Selected_Participatory_Techniques_Detail_Description</a></td>
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<td></td>
<td><a href="http://wiki.mekonginfo.org/index.php/117TA_Interview_Techniques_Overview">http://wiki.mekonginfo.org/index.php/117TA_Interview_Techniques_Overview</a></td>
</tr>
<tr>
<td>Handouts</td>
<td>M5S2H1 – Organising and Implementing Stakeholder Surveys</td>
</tr>
<tr>
<td></td>
<td>M5S2H2 – Guidelines for the Field Exercise</td>
</tr>
</tbody>
</table>

Session Guide

Note: If the trainer does not have practical experience in conducting stakeholder surveys, it is strongly recommended to hire an experienced facilitator for this training session, who can share the knowledge, practical experiences and concrete examples with the participants.

1. Inform the participants that this session is a combination of theoretical input and practical field exercise.

2. Ask the participants, if they have experiences in implementing stakeholder surveys. Collect their ideas on a flipchart:
   ✓ Why are stakeholder surveys important?
   ✓ What are the major challenges of stakeholder surveys?
   ✓ Who should conduct stakeholder surveys?
   ✓ How should they be organized?

3. Give a short presentation based on handout M5S2H1 and the information in the Resource Kit (see the links above or the CD) filling the knowledge gaps, which you might have observed when collecting the information from the participants.

4. Provide an overview about participatory methods and techniques that can be used when implementing the stakeholder surveys (refer to the information in the Resource Kit) and recall the information on gender analysis under session M4S4.

5. Present the area, which has been selected for the field exercise. Provide:
   ✓ Relevant data and information from available sources,
   ✓ A topographic map,
   ✓ A list of those stakeholder groups in this area, which agreed to be interviewed by the training participants.
6. Divide the participants into groups and ask each group to:
   ✓ Select one stakeholder group,
   ✓ Decide, which method(s) they want to use for the survey, and
   ✓ Decide how they want to organize the survey.
   The trainer / facilitator should observe the work of the groups and provide support and guidance.

7. Invite each group to present their plan for the stakeholder survey. Facilitate a discussion on open questions and comments. Provide feedback and suggestions.

8. Organize the field exercise. At least half a day should be allocated.

9. Ensure that after the field exercise all the groups will have an opportunity to present their results and discuss the experiences and lessons learnt, which they gained, as well as the challenges, which they faced.

10. Summarize the main learning points and check whether the participants reached the training objectives of this session.
Handout M5S2H1: Organising and Implementing Stakeholder Surveys

The watershed stakeholders have different views about the watershed functions, and why and how they are important to them. They can also provide data and information that can be invaluable in better understanding the health of a watershed and how its resources are behaving under the stress of development. Data collected by government agencies often is very sparse or incomplete.

For example, a baseline survey of a watershed using mainly data from official networks may conclude that the whole watershed is rich in fishery resources and although there has been some reduction in fisheries, overall the health of the fishery and its catch yields are still high. But some communities at a more local or commune level may disagree with this and provide information that at some local areas, which are important for their livelihood, fish catches and health have heavily declined, enough to affect food supplies.

The objective of the stakeholder survey is to understand:

- how different groups are using water (surface and underground water) and related resources,
- what their future needs or interests are and how they can be met,
- what effect the use of water and related resources has on the availability and quality (especially potential pollution) of water,
- which major changes were observed in the watershed during the last 10 (or more) years,
- how people think the watershed should look in 10 years from now and what has to be done to achieve this situation,
- how people think the watershed would look in 10 years from now, if they carry on as during the last 10 years.

When specific problems are mentioned during the interviews, it should be clarified, if the stakeholders have already some ideas how these problems could be solved.

It may also be necessary to collect specific information to clarify inconsistencies and conflicts as well as gaps, which have been observed during the gathering of data and information from the available sources.

The stakeholder survey should include interviews with local communities, representatives of government agencies on village, district and provincial level, as well as enterprises and civil society groups. If donor supported projects from international organisations and NGOs are active in the watershed, their representatives should be included in the survey to understand their strategies and future plans.

Interviews on community level should be carefully planned. As it will not be possible to interview all community members it should be clarified if the selected representatives have the mandate to speak for the concerned groups. Interviews with ethnic minorities and especially women in all community groups should be planned with special care to allow these groups to articulate their views and interests. Local knowledge and anecdotal information may provide valuable insights in the conditions and trends of watershed functions as well as related problems and challenges.

To plan the surveys the following points should be considered:

- Identify the stakeholders and the representatives who have a clear mandate to speak on behalf of specific groups.
- Inform the stakeholder groups in advance about the planned survey, the objective of the survey and when you would like to meet them. The scheduling of the interviews should be done in a way that both men and women have opportunities to participate. In some cases it may be necessary to schedule meetings after working hours.
- Design the questionnaire according to the specific characteristics and needs of the stakeholder groups e.g. their educational background, their culture, their specific language.
- Determine the best way to collect the information from these groups (e.g. in writing or face to face, during group discussions or individual interviews, etc.).
A team of at least two experts should carry out the interviews. The team leader should be experienced in social surveys and should assist in the design of the survey. During the interviews he/she should make sure that the interests and views of the concerned person or group are fully explored. The second expert should be familiar with water or natural resources management. He/she will record the answers and ask supplementary questions to clarify the underlying problem and to get maximum technical information. While organising the interviews with ethnic minorities it might be necessary to work with a translator who is carefully selected to make sure that the concerned group fully trusts him or her. For interviews with women representatives it is advisable to include a woman in the survey team who has experiences with social surveys.

At the end of each group survey the information should be summarized and analysed. It should be considered that the information gathered is based on the individual opinion of the interviewees. The information may be biased because of specific individual or group interests, local problems or disagreements between different groups (e.g. local communities and the local administration). Therefore, the gathered information - especially that from different stakeholders - should be cross-checked and compared with the data and information gathered from available sources. Inconsistent or conflicting information should be identified and clarified in further discussions with the concerned stakeholders.
SESSION M5S3: IDENTIFYING AND PRIORITISING CRITICAL ISSUES

Training objectives of this session

By the end of the session, the participants are able to:

• Identify existing and emerging issues that are impacting on the ecological, social and economic watershed functions,
• Prioritize the most critical issues that need to be addressed, and
• Compile a watershed profile.

Session Info

<table>
<thead>
<tr>
<th>Time</th>
<th>2.5 hours</th>
</tr>
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<tbody>
<tr>
<td>Methods</td>
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</table>
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  • Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens |
| Links for more info | http://wiki.mekonginfo.org/index.php/115_WSM_Key_Problems_and_Challenges  
  http://wiki.mekonginfo.org/index.php/115CS_Priority_Issues_and_Problems_Examples_Sre_Pok_Vie  
  http://wiki.mekonginfo.org/index.php/432CS_Results_Problem_Analysis_Example_Kbal_Chay_Cam  
  http://wiki.mekonginfo.org/index.php/301TA_Watershed_Plan_of_Action%E2%80%93Siem_Reap_Updated |
| Handouts   | M5S3H1 - Identifying water relevant issues  
  M5S3H2 - Selecting the most critical water relevant issues  
  M5S3H3 – Example table of content for watershed profile |

Session Guide

1. Give a short presentation to introduce the learning objectives of this training session.
2. Use the information in handout M5S3H1 to present some background information concerning the identification of water relevant issues. Emphasise that in a:
   First step all issues, which have been identified based on the data/information collection and stakeholder survey should be identified and listed,
   Second step the water relevant issues should be highlighted in this list.
3. Select a case study for the further training (see links above or on the CD) or use your own case study.
4. Invite the participants to work in groups. Provide the relevant documents of the selected case study for each group and ask the participants to:
   ✓ Identify all the issues, which are raised in this case study, and
   ✓ Check the issues and highlight those which are water relevant.
5. Invite the groups to present their findings in the plenary, collect the issues, which have been identified and clarify if there are any additional issue, which should be included in the list.
6. Ask the participants to return to their groups and read handout M5S3H2. Based on this information they should further analyse the list of issues:
   ✓ Identify the impact of the identified water relevant issues on watershed functions, and
1. Categorize these issues according to the following questions:
   - Which issues are the most critical ones and why?
   - Which issues should be addressed immediately by the watershed committee?
   - Which issues should be considered in the long term planning for the watershed?
   - Which issues should be delegated to other authorities and why?
   - Which issues should not be considered in the further planning and why?

7. Invite each group to present their results in the plenary and facilitate a discussion on these results.

8. Explain that the selected water relevant issues, which should be addressed by the watershed committee, form the basis for the elaboration of a Plan of Action and will therefore be used for the further training under Module 6.

9. Emphasize the importance of involving all relevant stakeholders in the process of selecting issues, which should be addressed by the watershed committee.

10. Explain that all the information, which has been gathered up to now should be compiled in a watershed profile. Use an example watershed profile (see handout M5S3H3) to explain:
   - How a watershed profile should look like?
   - Which information should be included in such a profile?
   - The profile forms the basis for monitoring the health of the watershed!
   - The profile has to be updated on a regular basis.

11. Summarize the main learning points and check whether the participants reached the training objectives of this session.
Based on the data and information which has been collected from available sources and the information from various stakeholders, all issues which have been raised should be identified. It will be helpful to group them according to key areas. During the stakeholder survey the interviewees might have raised issues which do not have an influence on the quality or quantity of water. For example, conservationists might be concerned that the uncontrolled use of natural resources in protected areas is having a negative influence on the biodiversity in these areas. Communities may argue that the deforestation in a certain area caused by mining activities or the establishment of an industrial tree plantation is destroying their access to non-timber-forest-products, which are very important for their livelihood. Irrigation farmers may complain that the irrigation schemes for their rice fields need urgent rehabilitation. For the further process the water relevant issues only should be highlighted.

The following table may help to group the issues under specific key areas and identify all water relevant issues.

### Table 4 - Identification of issues and their water relevance

<table>
<thead>
<tr>
<th>Key areas Examples</th>
<th>Key questions Examples</th>
<th>Potential issues Examples</th>
<th>Is the issue water relevant?</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \text{Floods} )</td>
<td>Are there areas in the watershed which are frequently flooded? Which positive or negative influences were articulated by stakeholders? Did the stakeholders articulate the need to address problems concerning the flooding?</td>
<td>Frequent floods destroy the agricultural crops. Frequent floods destroy settlements. Frequent floods transport sediments into agricultural fields and improve the fertility of the soil.</td>
<td>Yes</td>
</tr>
<tr>
<td>( \text{Periodic Water Shortage} )</td>
<td>Are there periodic (dry season) or local water shortages? Do stakeholders articulate the need for improved water allocation?</td>
<td>Up-stream water users (like a hydropower dam) control the water level in a river and there is not enough water for irrigation farming especially during the dry season.</td>
<td>Yes</td>
</tr>
<tr>
<td>( \text{Fishery} )</td>
<td>Are there any developments having a negative impact on fisheries? Do fishers observe declining fishing yields?</td>
<td>Hydropower dams are blocking the fish migration and are having a negative influence on the regeneration of fishing stocks. Communities in a certain village complain that fishers from other villages overexploit their fishing sources.</td>
<td>Yes</td>
</tr>
<tr>
<td>( \text{Dams and reservoirs} )</td>
<td>Are there existing or planned reservoirs which might have an impact on downstream water flow? Is the water supply in the catchment areas of dams or reservoirs impacted by management practices in those areas?</td>
<td>During the dry season the downstream water level below the reservoir ‘X’ is reduced and this has a negative influence on the irrigation farming in this area. Deforestation activities in the catchment of the reservoir ‘X’ are causing increased erosion and siltation of the reservoir.</td>
<td>Yes</td>
</tr>
<tr>
<td>( \text{Urban and industrial water use} )</td>
<td>What are current or possible future impacts of urban and industrial discharge or mining effluent on water quality?</td>
<td>The uncontrolled garbage disposal and waste water discharge in the urban centre is polluting the river. Polluted water from the gold mining in the area of ‘Z’ is having a negative influence on the water quality of ground water and surface water in downstream areas.</td>
<td>Yes</td>
</tr>
<tr>
<td>Key areas Examples</td>
<td>Key questions Examples</td>
<td>Potential issues Examples</td>
<td>Is the issue water relevant?</td>
</tr>
<tr>
<td>-------------------</td>
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</tr>
<tr>
<td><strong>Land use</strong></td>
<td>What are current or potential impacts of forestry, agriculture and other land uses on downstream water supply, floods, low flows and water quality?</td>
<td>Deforestation activities in the area ‘X’ are having a negative influence on the availability of non timber forest products for concerned local communities. The new irrigation scheme in the area of the village ‘Y’ is reducing the water level in the river ‘Z’ and downstream communities face a problem of water shortage.</td>
<td>No</td>
</tr>
<tr>
<td><strong>Water supply and sanitation</strong></td>
<td>Is the water quality of local rivers and/or ground water negatively influenced by e.g. lack of waste management or waste water treatment or other sources of pollution?</td>
<td>There is no waste water treatment in the urban centre and uncontrolled discharge and the pollution is causing health problems for downstream communities.</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Environment and Waterways</strong></td>
<td>Are there any areas such as wetlands, natural floodplains or protected forests which are negatively influenced by current resource users or might be impacted by future developments?</td>
<td>The planned extension of the irrigation scheme in village ‘X’ will destroy the wetland in this area, which is a very important breeding area for endangered bird species.</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Groundwater</strong></td>
<td>What are existing or potential sources of groundwater pollution?</td>
<td>Insecticides and/or pesticides used in the vegetable production area of the farm ‘X’ are polluting the ground water.</td>
<td>Yes</td>
</tr>
</tbody>
</table>

After listing all issues under the key areas the Watershed Management Committee should re-check the grouping. It may be necessary to readjust the grouping or to add additional key areas to make sure that all issues are considered according to their importance.
The questions in table 5 may help you to assess the importance of the identified issues and the urgency to address them:

Table 5 – Impact of issues on watershed functions

<table>
<thead>
<tr>
<th>Impact on</th>
<th>If the issue is not solved,…</th>
</tr>
</thead>
</table>
| 1. Ecological watershed functions | • what would be the short term and/or long term impact?  
• how severe would the impact e.g. would it cause irreversible damage to downstream water levels or water quality of surface or ground water?  
• what would be the impact on other goods and services such as soil fertility, biodiversity, soil erosion control etc. in a specific area? |
| 2. Economic watershed functions | • would this have a negative influence on the provision of natural resources on which the local communities depend (e.g. non-timber-forest-products, timber, fish, meat from wildlife, etc)?  
• would it affect future development options in the watershed area?  
• would it have an influence on income generating opportunities of local communities?  
• could it affect future options for irrigation farming (e.g. expansion of existing sites or establishment of new sites)?  
• could it affect the potential for hydropower schemes development or operation? |
| 3. Social watershed functions | • would it have an impact on the spreading of certain diseases or make water or other resources unusable for human consumption?  
• would already marginalised community groups (like ethnic minorities, their women or women in other groups, etc.) be even more disadvantaged? |
| 4. Trans-boundary impact | • would there be downstream effects in bordering districts, provinces or even countries?  
• would it affect one district more than another?  
• would the actions of one district make the issue worse for another district? |

In many cases, a large number of issues will be identified and it will be necessary to decide which issues the Watershed Management Committee should address immediately. The following matrix (figure 9) shows how you can categorise the issues according to their importance and urgency:

- **Do** means that the issues have been identified as the most critical ones and should be addressed during the time period of the Plan of Action.
- **Delay** means that an issue should be considered in the long term planning for the watershed.
- **Delegate** means that an issue may be so big, difficult or costly to tackle, that it cannot be dealt with on the level of the Watershed Management Committee and has to be dealt with on higher levels like river basin organisations.
- **Delegate** can also mean that the issue is not water relevant and should be dealt with by the relevant line department in another context.
- **Don’t** means that the issue is of such a minor importance and urgency that it should not be considered in the further planning.
These questions should be clarified within the Watershed Management Committee. It is also important to get the feedback of all concerned stakeholders, before final decisions are made.

All issues which have been identified as the most critical ones and which should be addressed immediately, as well as those which should be considered in the long term planning for the watershed form the basis for the elaboration of the Plan of Action in the next Module.
**HANDOUT M5S3H3: EXAMPLE TABLE OF CONTENT FOR WATERSHED PROFILE**

<table>
<thead>
<tr>
<th>1</th>
<th>Introduction</th>
<th>4.4.2</th>
<th>Land Grabbing and Land Speculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Background</td>
<td>5</td>
<td>Land and Forest Cover</td>
</tr>
<tr>
<td>1.2</td>
<td>Identification and location of the study area</td>
<td>6</td>
<td>Forest Resource Management</td>
</tr>
<tr>
<td>1.3</td>
<td>Methodology and Approach</td>
<td>6.1</td>
<td>Vegetation Types</td>
</tr>
<tr>
<td>1.4</td>
<td>Studies of Relevance for the watershed area</td>
<td>6.2</td>
<td>Forest and Protected Areas Management</td>
</tr>
<tr>
<td>1.5</td>
<td>Programs, Projects, Activities in the watershed area</td>
<td>6.2.1</td>
<td>National Park</td>
</tr>
<tr>
<td>1.6</td>
<td>Stakeholders</td>
<td>6.2.2</td>
<td>Protected Landscape</td>
</tr>
<tr>
<td>6.2.3</td>
<td>Forest Concessions</td>
<td>6.2.4</td>
<td>Community Forestry and Community Protected Areas</td>
</tr>
<tr>
<td>2</td>
<td>Biophysical Environment</td>
<td>6.3</td>
<td>Forest Administration</td>
</tr>
<tr>
<td>2.1</td>
<td>Topography and watershed boundaries</td>
<td>6.4</td>
<td>Timber Production</td>
</tr>
<tr>
<td>2.2</td>
<td>Climate</td>
<td>6.5</td>
<td>Illegal Logging</td>
</tr>
<tr>
<td>2.3</td>
<td>Hydrology</td>
<td>6.6</td>
<td>Timber Market and Wood Processing Industry</td>
</tr>
<tr>
<td>2.3.1</td>
<td>Drainage patterns and morphology</td>
<td>6.7</td>
<td>Other Forest Products</td>
</tr>
<tr>
<td>2.3.2</td>
<td>Surface water quantity: flow and water level</td>
<td>6.8</td>
<td>Forest Fire</td>
</tr>
<tr>
<td>2.3.3</td>
<td>Surface water quality</td>
<td>6.9</td>
<td>Tree Planting and Plantations</td>
</tr>
<tr>
<td>2.3.4</td>
<td>Groundwater</td>
<td>6.10</td>
<td>Wildlife</td>
</tr>
<tr>
<td>2.4</td>
<td>Geology and Soils</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4.1</td>
<td>Geology</td>
<td>7</td>
<td>Agriculture</td>
</tr>
<tr>
<td>2.4.2</td>
<td>Soils</td>
<td>7.1</td>
<td>Permanent Agriculture</td>
</tr>
<tr>
<td>2.5</td>
<td>Accessibility and Roads</td>
<td>7.2</td>
<td>Shifting Cultivation</td>
</tr>
<tr>
<td>2.6</td>
<td>Land use</td>
<td>7.3</td>
<td>Livestock</td>
</tr>
<tr>
<td>3</td>
<td>Socio-Economic Environment</td>
<td>7.4</td>
<td>Fishing and Aquaculture</td>
</tr>
<tr>
<td>3.1</td>
<td>Demographic Data</td>
<td>8</td>
<td>Summarizing conclusions and problem analysis</td>
</tr>
<tr>
<td>3.1.1</td>
<td>Population</td>
<td>9</td>
<td>Recommendations and potential fields of action</td>
</tr>
<tr>
<td>3.1.2</td>
<td>Migration</td>
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<td></td>
</tr>
<tr>
<td>3.1.3</td>
<td>Ethnicity and Belief</td>
<td>10</td>
<td>Reference and Literature List</td>
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<tr>
<td>3.2</td>
<td>Livelihood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1</td>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.2</td>
<td>Access to water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.3</td>
<td>Sanitation and health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.4</td>
<td>Income and Poverty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.5</td>
<td>Access to Credit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.6</td>
<td>Household Expenditure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.7</td>
<td>Land Mines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td>Seasonal Calendar</td>
<td>11</td>
<td>Annexes (Figures, Tables, Documents)</td>
</tr>
<tr>
<td>3.4</td>
<td>Village Administration and Social Organization</td>
<td>11.1</td>
<td>Table Annex</td>
</tr>
<tr>
<td>4</td>
<td>Land Management</td>
<td>11.2</td>
<td>Figure Annex (Maps and Graphs)</td>
</tr>
<tr>
<td>4.1</td>
<td>Institutions involved in Land Management</td>
<td>11.3</td>
<td>Stakeholder and Problem Analysis</td>
</tr>
<tr>
<td>4.2</td>
<td>Land Allocation and Land Use Planning</td>
<td>11.4</td>
<td>Identification of Problems and Issues</td>
</tr>
<tr>
<td>4.3</td>
<td>Land Disputes and Conflicts</td>
<td>11.5</td>
<td>Other Documents</td>
</tr>
<tr>
<td>4.4</td>
<td>Land encroachment</td>
<td>11.6</td>
<td>Soil data</td>
</tr>
<tr>
<td>4.4.1</td>
<td>Encroach for Subsistence Farming</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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MODULE M6 – CREATING A PLAN OF ACTION

Having identified all water relevant issues which should be addressed by the Watershed Management Committee, it is now time to determine what course of action is needed to achieve watershed management. This requires the elaboration of a coherent, strategic and practical roadmap for the future - the Plan of Action.

Training objectives of this module

By the end of the training module M6 the participants are able to:

- Define the long-term goal and specific objectives for a watershed,
- Identify potential solutions and priority actions to address the most critical watershed issues,
- Assess the feasibility of the identified solutions to ensure that they are realistic and achievable,
- Specify if detailed project proposals and special funding are needed to implement the priority actions,
- Compile a Plan of Action and define mechanisms to manage and regularly update the plan,
- Understand the necessity to integrate (cross-link) watershed management plans and other relevant government plans and programs, concerning the utilization of natural resources,
- Understand the purpose and principles for integrating Watershed Management Plans into other relevant government plans and programs,
- Understand the role and responsibilities of the Watershed Management Committee in coordinating and monitoring the integration process, and
- Understand the importance of involving relevant stakeholders in the decision making process.

This training module is divided into four complementary training sessions

Session M6S1: Defining the long-term goal and specific objectives  
Session M6S2: Identifying achievable solutions, priority actions, responsible actors as well as potential funding sources  
Session M6S3: Compiling, managing and updating a Plan of Action  
Session M6S4: Integrating the Plan of Action into government planning systems
SESSION M6S1: DEFINING THE LONG-TERM GOAL AND SPECIFIC OBJECTIVES

Training objectives of this session

By the end of the session, the participants understand the importance of:

- Defining a long-term goal for the watershed, and
- Formulating specific objectives which should be reached in the planning period of the Plan of Action.

Session Info

<table>
<thead>
<tr>
<th>Time</th>
<th>2 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td>Presentation, group work and discussions</td>
</tr>
<tr>
<td>Aids</td>
<td>computer and LCD projector</td>
</tr>
<tr>
<td>Materials</td>
<td>Pin boards and flip chart stands, Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens, Copies of the long-term goal and specific objectives from exemplary Watershed Plan of Action</td>
</tr>
</tbody>
</table>
| Links for more info | [link1](http://wiki.mekonginfo.org/index.php/438_Documentation_of_Planning_Results)  
[link2](http://wiki.mekonginfo.org/index.php/434_Development_of_Objectives_and_Indicators)  
[link3](http://wiki.mekonginfo.org/index.php/301TA_Watershed_Plan_of_Action%E2%80%93Siem_Reap_Updated) |
| Handouts   | M6S1H1 - Defining the Long-Term Goal and Specific Objectives |

Session Guide

1. Start the session by asking the participants “Why do we need a Plan of Action for the management of watersheds?” Write down the arguments on a flip chart and facilitate a discussion on the presented arguments.

2. Use the information from handout M6S1H1 and the Resource Kit (see the links above or the CD) to give a short presentation on the formulation of long-term goals and objectives for watershed management. Emphasize that:

   √ The existing development goals on district and provincial levels have to be considered, when formulating a long-term goal for the watershed management; a long-term goal is usually formulated for a time period of 20 years,

   √ The long-term goal has to be translated into a set of specific objectives, which should be reached during the time period of the Plan of Action,

   √ These objectives are the socio-economic, biophysical and other changes that will occur as a result of effective watershed management, and

   √ The Plan of Action is the road map for bringing about these changes.

3. Ask the participants, if they have ever been involved in the elaboration of a Plan of Action and if they could provide the long-term goal and objectives of this plan as an example for discussion. As alternative use the Plan of Action for Siem Reap provided on the CD or any other Plan of Action, which you might have available.

4. Invite the participants to work in groups. Provide the relevant information from the selected Plan of Operation concerning the long-term goal(s) and objectives for each group. Ask them to read this information and discuss within the group if they have any comments concerning the goal(s) and objectives and if they would propose any changes.

5. Invite each group to present their result in the plenary. Provide feedback and facilitate a brief discussion
of open questions.

6. Summarize the main learning points and check whether the participants reached the training objectives of this session.
HANDOUT M6S1H1: DEFINING THE LONG-TERM GOAL AND SPECIFIC OBJECTIVES

As described in the previous Module, all relevant stakeholders should be involved in identifying the issues that exist in the watershed, assessing their water relevance, deciding how important they are for the watershed functions and how urgently they should be addressed.

All of these different sources of information, views and perspectives must now be brought together under a consolidated long-term goal for the watershed. The long-term goal states what should be achieved in the watershed, with a view to addressing the identified issues and maintaining its economic, ecological and social functions. This long-term goal must balance the varying needs and objectives of different stakeholder groups. When formulating the long-term goal for a specific watershed, the existing development goals on district and provincial levels should be considered. In other words: The long-term goal for the watershed should be compatible with the development goals of the concerned districts and province(s) and it should contribute to the achievement of those development goals. The time period for which the long-term goal is formulated and the time period of the Plan of Action should be the same as the time period for the development planning on district and provincial level. A long-term goal is normally formulated for a time period of 20 years and the Plan of Action normally has a time period of 3–5 years. Please note: The Plan of Action will be an important contribution to achieve the long-term goal but not the only one.

Once formulated, the long-term goal must be translated into a set of specific objectives (see examples in table 6) which should be reached during the time period of the Plan of Action. These objectives are the socio-economic, biophysical and other changes that will occur as a result of effective watershed management. The Plan of Action is the road map for bringing about these changes.

Table 6 - Examples of long-term goal and specific objectives

<table>
<thead>
<tr>
<th>Example of a long term goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equitable and pro-poor development and economic growth in Watershed X based on the sustainable use of natural resources and conservation of watershed values</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Examples of specific objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>• To reduce industrial, urban and agricultural water pollution</td>
</tr>
<tr>
<td>• To restore and reforest degraded lands</td>
</tr>
<tr>
<td>• To introduce more sustainable farming practices on sloping land and riverbanks</td>
</tr>
<tr>
<td>• To promote new income, business and employment opportunities based on the sustainable use of natural resources</td>
</tr>
</tbody>
</table>

Together, the long-term goal and the specific objectives state what the Watershed Management Committee wants to achieve in a given watershed, and how this will change the current situation. Again, the importance of involving all stakeholders in this process cannot be over-emphasised.
SESSION M6S2: IDENTIFYING ACHIEVABLE SOLUTIONS, PRIORITY ACTIONS, RESPONSIBLE ACTORS AS WELL AS POTENTIAL FUNDING SOURCES

Training objectives of this session

By the end of this session, the participants are able to:

- Identify potential solutions and priority actions to address the most critical watershed issues, and
- Assess the feasibility of the identified solutions to ensure that they are realistic and achievable, and
- Specify if detailed project proposals and special funding are needed to implement the priority actions.

Session Info

<table>
<thead>
<tr>
<th>Time</th>
<th>3 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td>Presentation, group work and discussions</td>
</tr>
<tr>
<td>Aids</td>
<td>computer and LCD projector</td>
</tr>
<tr>
<td>Materials</td>
<td>Pin boards and flip chart stands</td>
</tr>
<tr>
<td></td>
<td>Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens</td>
</tr>
<tr>
<td></td>
<td>Copies of the case study on watershed problems</td>
</tr>
<tr>
<td>Handouts</td>
<td>M6S2H1 - Identifying achievable solutions for water relevant issues</td>
</tr>
<tr>
<td></td>
<td>M6S2H2 - Agreeing on the role and responsibility of different actors</td>
</tr>
<tr>
<td></td>
<td>M6S2H3 – Summarising the information collected so far</td>
</tr>
</tbody>
</table>

Session Guide

1. Start this training session by introducing the training objectives. In addition, give a short presentation based on the information in the handouts and in the material from the Resource Kit (see the links above or the CD). This presentation should include a clarification of the relationship between:

   - The objectives of the Plan of Action,
   - The solutions for each water relevant issue, and
   - The priority actions, which are necessary to achieve the identified solutions.

   The presentation should also clarify:

   - The difference between preventive and curative solutions,
   - The importance of involving stakeholders in the process of identifying solutions and priority actions, and
   - The importance of clarifying the roles and responsibilities of different actors.

2. Invite the participants to work in groups and ask them to read handout M6S2H1. They should now use the list of water relevant issues, which they elaborated in the last session under Module 5, select 2-3 issues and formulate concrete and specific solutions regarding these issues. If there is no list of issues available you might also use one of the case studies mentioned in the list above or your own case study.

3. Invite a representative of each group to present the result of their work and facilitate a discussion on
the presented solutions.

4. Ask the participants to return to their groups and:
   ✓ Identify priority actions for each solution,
   ✓ Clarify if these actions can be implemented within existing structures and within the budget frame of concerned authorities, and
   ✓ Clarify for which actions specific project proposals have to be elaborated.

5. Ask the groups to present their results and facilitate a discussion about the feasibility of reaching the selected solutions on the basis of the identified actions.

6. Explain that after the solutions and priority actions have been formulated it is very important to agree, who will take the main responsibility for the implementation of each solution/priority action. Ask the participants to read handout M6S2H2, which provides more information on this issue. Ask each group to discuss about the roles and responsibilities within the Watershed Management Committee based on the solutions and actions they have formulated.

7. After all the group work, exercises and discussions have been completed, give all the participants a good example of a summary table (including the issues, solutions, priority actions and responsibilities, according to the format in handout M6S2H3).

8. Summarize the main learning points and check whether the participants reached the training objectives of this session.
HANDOUT M6S2H1: IDENTIFYING ACHIEVABLE SOLUTIONS FOR WATER RELEVANT ISSUES

Next, it is necessary to decide what must be done to move towards this “bigger picture” formed by the long-term goal and the specific objectives - and to address the water relevant issues that were identified during the Training Module 5. It has already been mentioned that there may be water relevant issues which are so big, difficult or costly to tackle that they should be delegated to higher levels like river basin organisations. In addition, other issues which cannot be addressed during the time period of the Plan of Action should be delayed and considered in future Plans of Action.

For each of the issues to be considered during the time period of the Plan of Action, the Watershed Management Committee has to identify achievable solutions. Wherever possible these solutions should be preventative (reversing current trends, or addressing the threat at its root) rather than curative (taking action to repair something that has already occurred), although in reality it is likely that the identified solutions will be a combination of both. It is also important that the solutions are formulated in the light of the intended objectives, which have been identified above.

Watershed solutions usually involve a wide range of actions from e.g. engineering and civil works, to awareness raising and education, studies, and research. So they have to be described by priority actions which are necessary to reach these solutions.

Stakeholder involvement in the process of solution and action identification not only improves the quality of the solutions, but also helps to build acceptance and buy-in to whatever is being proposed.
The Plan of Action will rely on many line agencies, institutions and stakeholder groups for its implementation - just as the Watershed Management Committee itself is composed of different members, each with a different area of expertise and development mandate. Whereas it is the Watershed Management Committee, as an integrated team, who is responsible for the overall Plan of Action, the responsibility for the implementation of priority actions will be assigned to individual actors, usually a provincial or district line department.

The most sensible way to assign responsibilities is to allocate actions according to the different sectoral and spatial mandates of the various actors that are involved in the Watershed Management. This ensures that those who are responsible for undertaking particular tasks already have the experience and technical expertise, as well as the authority, to undertake them. However, some degree of negotiation is also usually required. Having taken on this responsibility, the relevant line agency, institution and stakeholder group is also committed to deliver on it.

The exact organisational modalities for implementation will vary in different countries, and depend on what status and mandate the Watershed Management Committee has been given. However, it is also worth remembering that in many cases the implementation of specific projects may well require cooperation between more than one line agency, stakeholder group, District or Province, or a partnership with an external partner. In these cases, the Watershed Management Committee has a key role to play in coordinating the actions of different actors and should help to clarify who will take the lead concerning specific actions and concrete projects. In the case of trans-boundary watersheds, the situation is obviously more complex.

Roles and responsibilities for carrying out different aspects of the Plan of Action should be agreed at the time at which it is developed, but may be modified or renegotiated on an annual basis. They should be discussed and agreed by all members of the Watershed Management Committee and all involved actors.
The following table 7 provides an example of how to summarize the issues, solutions, priority actions and responsible actors. If there is already any information available regarding potential funding sources for specific actions, they should also be mentioned in this table.

Table 7 - List of issues, solutions, priority actions, responsible actors and potential funding sources

<table>
<thead>
<tr>
<th>Key area</th>
<th>Issue</th>
<th>Solutions</th>
<th>Priority Actions</th>
<th>Responsible actors and who will take the lead</th>
<th>Potential funding sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand Mining</td>
<td>Uncontrolled sand mining in the areas along the river ‘X’ and in its riverbed is polluting the water in this river.</td>
<td>Stop the sand mining along the river 'X' and in its river bed.</td>
<td>Organise awareness raising campaigns for concerned stakeholders, to make sure that they understand the negative effects of the actual sand mining practice. Improve law enforcement of respective regulations. If necessary, improve those regulations. Follow up the implementation of the regulations.</td>
<td>Department of Water Resources and / or Department responsible for Mining</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Identify alternative areas, where sand mining should be allowed under specific regulations.</td>
<td>Map potential sand mining areas.</td>
<td>Elaborate specify regulations under which sand mining in these areas will be allowed.</td>
<td>Department of Environment</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Establish a monitoring system for regular surveys.</td>
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</tbody>
</table>

Issues which are of highest importance and/or which should be addressed urgently should be highlighted in this list. In addition, it should be explained for which actions detailed project proposals will be needed and who will be responsible to elaborate these proposals. How to elaborate detailed project proposals will be explained in the next training module (M7).

In an additional table the timeline for the implementation of each action should be clarified.
SESSION M6S3: COMPILING, MANAGING AND UPDATING A PLAN OF ACTION

Training objectives of this session

By the end of session, the participants are able to:

• Compile a coherent, strategic and practical Watershed Management Plan of Action, and
• Define mechanisms for the management and regular updating of the Plan of Action.

Session Info

| Time       | 2 hours                      
<table>
<thead>
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<tbody>
<tr>
<td>Methods</td>
<td>Presentation, group work and discussions</td>
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<tr>
<td>Aids</td>
<td>computer and LCD projector</td>
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</tbody>
</table>
| Materials  | • Pin boards and flip chart stands  
|            | • Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens  |
| Links for more info | http://wiki.mekonginfo.org/index.php/301TA_Watershed_Plan_of_Action%E2%80%93Siem_Reap_Updated  
| Handouts   | M6S3H1 - Compiling a Plan of Action  
|            | M6S3H2 - Managing the Plan of Action  
|            | M6S3H3 - Updating the Plan of Action  |

Session Guide

1. Start this training session by asking the participants, if they have experiences with the elaboration of action plans and what they think should be included in such plans. List all the answers and comments on a flip-chart.
2. Invite the participants to work in groups, ask them to read handout M6S3H1 and briefly discuss the table of content for a Plan of Action, which is proposed in this handout.
3. Ask the groups to present their comments in the plenary and facilitate a discussion on what should be included / not included in a Plan of Action.
4. Emphasize that the Plan of Action should not be a lengthy or complicated document and that the format of a Plan of Action should be, as far as possible, consistent with other development planning formats that are used in the watershed area.
5. Give a presentation on the management and updating of a Plan of Action based on the information provided in handout M6S3H2, handout M6S3H3 and the Resource Kit (see the links above or the CD). Allow time for a discussion of open questions.
6. Ask some of the participants (2-3) to summarize what were the main lessons learnt in this training session. Consider these comments in your closing remarks for the session.
The information collected and decisions made up to now provide the basis for compiling the Plan of Action for the watershed. The Plan of Action is a document which justifies and summarises the actions that will be carried out, clarifies which actors are responsible for the implementation and provides an indication of potential funding sources. It commits the Watershed Management Committee and its partners to carrying out the agreed set of actions over a given time period. The time period for the Plan of Action should be consistent with other government planning cycles. Water relevant issues which have been delegated to higher authorities and those which cannot be addressed during the time period of this Plan of Action should be mentioned in the introduction of the plan.

Compiling the Plan of Action does not require the collection of any new information.

The Plan of Action should not be a lengthy or complicated document. Administrators seldom have the time to read long text – and this is unnecessary for an action-oriented plan. The Plan of Action refers to detailed technical documents as they become available like specific project proposals and the Financing Plan, which are presented as separate documents. The Plan of Action should also refer to the sources of available data and information as well as the stakeholder consultation records which have been used in the process to identify the water relevant issues.

What exactly is included in the Plan of Action will of course vary in different situations and countries, but a minimal Plan of Action should include the content listed below:

1. Introduction
   - Information on how the watershed management planning process was carried out.
   - Which data and information sources have been analysed?
   - Which stakeholders have been included in the stakeholder survey?
   - Who are the members of the Watershed Management Committee and what is the mandate of this committee?

2. Short description of the watershed
   - Location, administrative areas like districts and provinces which are part of the watershed; information about the population like ethnic groups, poverty; sites of specific importance like protected areas, wetlands, etc.
   - The main development activities like mining or hydropower which are ongoing or planned for the future, should be described briefly.
   - Maps providing the respective information should be attached to the Plan of Action.

3. Which issues will NOT be addressed in this Plan of Action?
   - Mention the issues, which will be addressed in future Plans of Action, and the issues, which have been delegated to higher authorities.

4. What does the Plan of Action want to achieve, and how will the intended changes be measured?
   - The long-term goal
   - The specific objectives which will be reached during the time period of the Plan of Action
   - The indicators which will be used to measure the intended changes

5. How will the specific objectives be achieved?
   - Summary of issues, solution, priority actions, responsible actors and lead actor as well as potential funding sources
   - Issues which are of highest importance and/or which should be addressed most urgently should be highlighted in this list.
   - A special table should provide an overview about the timeline for the implementation of each action.
6. What has to happen next?
   - It should be explained for which actions the elaboration of detailed project proposals will
     be necessary and who will be responsible to elaborate them.
   - In addition, it should be mentioned that a detailed Financing Plan for the implementation
     of the Plan of Action will be elaborated and when this plan will be provided.
   - Furthermore, the monitoring and evaluation systems should be mentioned which will be
     used to measure the progress of the implementation of the Plan of Action and to assess
     the health of the watershed on a regular basis.

7. How does the Plan of Action contribute and relate to other development plans in the area of
   the watershed?
The Plan of Action is meant as a rolling plan or as a living document. The Watershed Management Committee should create a secretariat whose task is to manage the Plan of Action. In its initial version, the Plan of Action only contains the basic information necessary to start activities. The structure of the Plan of Action is a prerequisite for good management and should clearly state what data and information impact on the watershed functions, how to collect them, when and by whom. The members of the watershed committee have to agree on the issues and prepare a work plan for the management. Over the course of time more and more information will be gathered on evolving topics such as:

- The status of the watershed’s health (new opportunities, new issues)
- The status of the political and legislative environment (new laws or regulations, evolving goals, evolving socio-economic development and other relevant plans at province levels or below)
- The status of projects which have been identified as important to solve specific issues (responsibilities, budget, funding, location, implementation, achievements so far)
- The status of the listed issues (projects or external factors may impact, new solutions emerging)

Apart from following-up these points, the secretariat would have the following tasks:

- Organise watershed committee meetings (e.g. for annual updating of the Plan of Action see below)
- Keep all available information relevant for watershed management (reports, other documents, data, maps, pictures etc.) ready for members, stakeholders, visitors. (Help with the reception and storage of gathered data and information for updating the watershed profile)
- Publicise all results and decisions of the committee (keep contact to stakeholders)
- Answer questions from stakeholders and others
- Prepare reports to government on the status of the Plan of Action

Based on the work of the secretariat, the watershed committee will be able to analyse trends and adjust the Plan of Action accordingly by adding or removing priority issues, adding new objectives and solutions and to decide how and when to update the watershed management Plan of Action.
The watershed Plan of Action is updated through regular reviewing. This is necessary in order to make any modifications which are required, as circumstances in the watershed change, as new policies and plans are formulated in the country concerned, and as more information becomes available about the watershed’s natural resources, the people living in it, and the economic and development activities being carried out, and the watershed functions.

The watershed committee, or in a first attempt its secretariat, will have to check the list of contents, and see what has to be updated and where the required information has to be found. New stakeholder consultations might become necessary for certain points or issues. New information on the background of the watershed may be available. If no clear objective had been formulated for the Plan of Action, the question would be if this could be done now. The objectives and contents of the provincial and district plans should be reviewed to check if the watershed Plan of Action needs to be adjusted in order to better complement the overall planning. On the basis of its monitoring, the watershed committee should be able to update the status of each of the listed issues and projects (planning, funding, implementation, impact on watershed health). When the expected outcome or impact has been reached, the issue can be deleted from the plan. New issues might need the committee’s attention since the last update of the Plan of Action. New funding sources may have come into sight; old ones may have been depleted and closed. When all this is done the watershed committee would be called for a meeting to validate the update before it is again widely publicised.
SESSION M6S4: INTEGRATING THE PLAN OF ACTION INTO GOVERNMENT PLANNING SYSTEMS

Training objectives of this session

By the end of the session, the participants are able to:

• Understand the purpose and principles for integrating Watershed Management Plans into other relevant government plans and programs, and
• Understand the role and responsibilities of the Watershed Management Committee in coordinating and monitoring the integration process.

Session Info

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<td>computer and LCD projector</td>
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</tbody>
</table>
| Materials  | • Pin boards and flip chart stands  
• Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens |
| Handouts   | M6S4H1 – Purpose and principles of integration  
M6S4H2 – Integration of watershed management issues and activities into relevant sector and development plans at all levels  
M6S4H3 – Integrating the Plan of Action into government planning systems |

Session Guide

1. Start the session by asking the participants “What is Integration?” Write down all the answers and comments on a flip chart and facilitate a discussion based on all the comments made by the participants.

2. Give a short presentation on the main principles for integrating/cross-linking the Watershed Plan of Action with the relevant government planning processes. Use the information in handout H6S4H1 and M6S4H2.

3. The purpose of this exercise is to ensure that all participants have a common understanding regarding the purpose and principles of integration.

4. Invite the participants to work in groups, ask them to identify relevant government planning processes, which should consider the critical watershed issues, solutions and priority actions specified in the Plan of Action, and which should be considered, when elaborating the Plan of Action. Ask them to note these planning processes on cards.

5. Collect all the cards and fix them on a pin board grouping similar planning processes together. Facilitate a discussion to clarify:
   ✓ Are all the relevant planning processes mentioned? or
   ✓ Are there any additional planning processes, which should be considered? and
   ✓ Why is it important to integrate/cross-link the different plans with each other?
   ✓ Who should take the main responsibility to ensure that the issues, solutions and priority actions of the watershed Plan of Action will be considered in all relevant planning processes?

6. Ask the participants to return to their groups and read handout M6S4H3. Facilitate a plenary discussion
concerning any open questions.

7. Clarify that it is much easier to reach an agreement on the purpose and principles of integration, than to implement the integration processes in practice.

8. Ask the participants to return again to their groups and discuss and list which difficulties or obstacles they anticipate in the process of integrating the Plan of Action into the government planning processes. After completing the list of difficulties / obstacles ask the groups to brainstorm and develop practical solutions to the identified difficulties / obstacles. Ask each group to develop a table on a flip chart (see the example below).

<table>
<thead>
<tr>
<th>Difficulties/ obstacles</th>
<th>Practical solutions</th>
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<tbody>
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9. Invite the groups to present their results in the plenary and facilitate a discussion on open questions and comments.

10. Summarize the main learning points and check whether the participants reached the training objectives of this session.
What is integration?

Integration in the context of watershed management planning is concerning:

1. The consideration of watershed issues, solutions and priority actions in relevant government development plans, sector plans and programs, as well as
2. The consideration of all these plans and programs in watershed management planning.

Which are the relevant government plans and programs?

All planning processes in the watershed area, which may have an impact on the ecological, social and/or economic watershed functions, are relevant. In section 5 of the CODE OF CONDUCT ON WATERSHED MANAGEMENT, CAMBODIA, you find a list of relevant government plans and programs (see the links to the Resource Kit or the CD, and a brief summary in handout M6S4H3).

Who is responsible for the integration?

Whereas it is the Watershed Management Committee, as an integrated team, who is responsible for the overall management of the Plan of Action (PoA), the main responsibility for integration should be assigned to the members of the watershed management committee in accordance with their sectoral and geographical mandates. It is recommended that the roles and responsibilities for integration should be agreed when the Plan of Action is developed (and updated).

What are the main principles for integrating the Watershed Plan of Action into the Government planning processes?

In order to ensure the successful and sustainable integration of watershed management plans with all the other relevant government planning processes the following principles need to be carefully taken into account:

Ownership and commitment

For the watershed management to be successful, sustainable and effective there needs to be a sense of ownership and commitment in all relevant government authorities at all levels. The decision makers need to understand the importance of watershed management in relation to other socio-economic development needs. The members of the Watershed Management Committee should advocate the importance of watershed issues and priority actions wherever possible. Those members of the Committee, who are from different government agencies, should make sure that watershed issues, solutions and priority actions are considered in the planning processes and programs of their own line departments / agencies.

Harmonization and alignment with the Government development plans and strategies

Watershed Management planning should not be considered as a separate planning mechanism, but rather an integral part of the provincial, district and commune planning processes. The Plan of Action for the watershed, which determines solutions and priority actions to effectively address the identified critical watershed issues should be, as far as possible, in line and contribute to the existing development plans and strategies in the watershed area.

Right information at the right time

It is very important that the time line for watershed planning is aligned with the time line of other development planning processes. The updated Watershed Plan of Action should be available as soon as sub-national development planning processes commence. In addition, the format of the Plan of Action should be, as far as possible, in line with the format of other development plans in the watershed area to ensure the effective integration.
REMARKS IN THE CODE OF CONDUCT (COC) ON WATERSHED MANAGEMENT, CAMBODIA

Section 1, 2 and 3 describe that:

1. The CoC applies to all relevant government ministries and sectors on all levels,
2. One of the objectives of the CoC is promoting the integration of watershed management activities with relevant sectors, and
3. Watershed management should integrate the work of all government ministries, institutions, sectors and others.

Section 5 – ‘Integration and Watershed Management Planning’ - lists:

• Planning processes in which the watershed management should be integrated, and
• Planning processes which should be considered in watershed management planning.

Section 6 specifies who is responsible on national and on local level for the integration of watershed management into the planning of other government institutions.

Section 7 specifies how issues and activities, which have been identified on watershed level, should be considered / integrated in relevant government plans.

EXCERPT FROM THE CODE OF CONDUCT

Forward

...

The Code of Conduct provides technical guidance for sustainable watershed management and encourages the integration of watershed management activities into relevant sectors and development plans at all levels.

Section 1: Nature and Scope of the Code of Conduct

This Code of Conduct shall:

• ...
• apply to all relevant government ministries and sectors, including agriculture, forestry, fishery, water resources, environment, industry, mining and energy, land management, zoning and construction, rural development, public work, transportation and telecommunication that are involved in managing and using any resources in a watershed,
• apply to provinces, districts and communes that are involved in the scope of the watershed.

Section 2: Objectives of the Code of Conduct

The objectives of this Code of Conduct are

• ...
• To promote integration of watershed management activities with relevant sectors.
Section 3: General Principles

Watershed management should:

- integrate the work of all government ministries, institutions and sectors, sub-national administration, private sector enterprises, development partners and projects, communities, associations, civil societies in sustainable management of watersheds;
- ensure the management of watersheds as part of socio-economic development and be flexible and adaptable to the specific situation in a watershed;
- ...

Section 5: Integration and Watershed Management Planning

5.1 Watershed management should be integrated into:

- national and sub-nation land use planning,
- development program of all sectors,
- water resource management and usage planning and integrated water resources management planning,
- agriculture development planning,
- strategic planning for fishery management,
- national strategic planning and action plan for protected area management,
- forestry management planning,
- environment management and pollution controlling planning,
- energy management and development planning,
- gender responsive planning,
- planning for human settlements and infrastructure,
- planning for social land concession,
- investment and development plan of commune-Sangkat, district-Khan, and province and municipality.

A national watershed coordination/supervisory body should be created based on the guideline for integrating watershed management as mentioned above.

5.2 There should be management plans for each watershed that should take into account:

- land use planning
- human settlements and infrastructure
- planning for social land concession
- agricultural development project
- socio- economic development plans
- management planning for natural protected areas, protected forests, community forests, production forests, planted forests, cultural heritage protected areas, etc.
- existing and planned natural protected areas and cultural heritage protected areas
- existing and planned protected forests and community forests
- existing and planned extractive operations including use of water resources, sand dredging, forestry, mining, energy development, construction, hydropower development, infrastructure development and construction.

Watershed management plans should be developed with the full participation of all relevant government ministries, institutions and sectors, private sector, development partners or projects, communities, associations, civil society and people responsible for managing and using any resource or having any operation in the watershed.
Section 6: Watershed Management Mechanisms

6.1 The national watershed coordination/supervisory body shall have the following roles and responsibilities:
- Prepares guidelines for integrating watershed management into the other planning of other relevant ministries, institutions and sub-national investment and development plan.

6.2 The watershed management mechanism at local level shall have the following roles and responsibilities:
- Supports the integration of planning and guidelines for watershed management operations into the relevant planning of the provincial office as well as the investment and development planning on capital-province, municipality-district-khan and commune-sangkat level.

Section 7: Watershed Management Operations

- Watershed boundaries should be mapped and clearly marked on the ground based on clear measurement and technical standards; they should be recognized by local authorities.
- Natural protected areas, production forests and protected forests in each watershed should be mapped and marked on the ground with participation from relevant institutions.
- The areas where human settlements and urbanization are allowed in each watershed should be mapped and clearly marked on the ground with participation from relevant institutions.
- Land use and management plans covering all or part of each watershed should specify:
  - the activities that have been allowed in the watershed and riparian areas;
  - the land used for agriculture in each part of the watershed and land having potential for agriculture in each part of the watershed
  - the areas where land erosion may occur and the steps that must be taken to control it
- Forest and forest by-product management plans covering all or part of each watershed should specify:
  - the activities that have been allowed in the watershed or in the riparian areas
  - the size and quantity of forest products and by-products to be extracted in each part of the watershed
  - the part of the watershed where enrichment planting, reforestation and afforestation should be carried out in accordance with the management plan and based on the national forest program
- There should be plans for waste management and waste disposal in each watershed based on the specific situation of each watershed and the planning of the Ministry of Environment.
- Sand dredging in each watershed should be controlled by the national watershed coordination/supervisory body. Control measures for sand dredging should specify:
  - the areas where sand dredging may be allowed. These areas should be mapped and clearly marked on the ground;
  - the methods and technical measures that may be used for sand dredging.
- Mining exploration and extraction in each watershed should be controlled by the national watershed coordination/supervisory body. Control measures for mining exploration and extraction should specify:
  - the areas where mining exploration and extraction may be allowed. These areas should be mapped and clearly marked on the ground;
  - the methods and technical measures that may be used for mining exploration and extraction.
- Watershed management plans should include control measures that specify the areas in each watershed where infrastructure and industrial development and construction are allowed and these areas should be mapped and clearly marked on the ground. Control measures for infrastructure and industrial development and construction should specify:
  - the areas in the watershed where infrastructure, industry development and construction are allowed. These areas should be mapped and clearly marked on the ground.
✓ the maintenance of water quality
✓ the quantity of water used in each area where development activities are allowed in accordance with the quantity of water available during the season/year.

• Water resource management plans should be integrated with watershed management plans. Watershed management plans should contain provisions that specify:
  ✓ the areas in the watershed where irrigation is allowed and these should be mapped and clearly marked on the ground;
  ✓ the irrigation methods that are allowed in each part of the watershed;
  ✓ the quantity and flow of water required in each tributary in the watershed for each time of year;
  ✓ the location of natural drainages and artificial drainage in the watershed and these locations should be mapped and clearly marked on the ground;
  ✓ the areas in the watershed where hydropower development is allowed based on an Environmental Impact Assessment (EIA) and these areas should be mapped and clearly marked on the ground.

• Fishery management plans covering the watershed should specify the types of fishing activities that are allowed in each part of the watershed.

• The national strategic planning and action plan of the Ministry of Environment for managing the natural protected areas in the watershed should be integrated into the watershed management planning. The watershed management planning should specify activities related to the use of natural resource, which are allowed in each part of the watershed as well as activities related to the use of ecological system, which are allowed in each part of the watershed in accordance with the regulations of the Ministry of Environment.
HANDOUT M6S4H3: INTEGRATING THE PLAN OF ACTION INTO GOVERNMENT PLANNING SYSTEMS

It has already been stated that the long-term goal must balance the varying needs and aspirations of different stakeholder groups and that existing development goals on district and provincial level should be considered. In other words: The long-term goal for the watershed should be compatible with the development goals of the concerned districts and province(s) and it should contribute to the achievement of those development goals.

That means that the actions which have been identified in the Plan of Action should reflect and complement what is already included in those plans as well as in the respective sector plans of the responsible provincial and district line departments. In that sense they should already be well-integrated with the development planning in the watershed.

Concerning some actions however it will be necessary to amend existing plans or fill in gaps in such plans. In these cases, efforts should be made to ensure that they are considered in future planning processes on all levels. This will ensure the consistency between the different planning processes in watersheds, and it is also a way of improving the degree to which decision and practices of the concerned government agencies are based on Watershed Management principles.

The Watershed Management Committee, working through its members, is responsible for overseeing and coordinating the integration of the Plan of Action into the various government plans which cover the watershed at different levels and for different sectors.

Integrating the Plan of Action into development planning also means ensuring that its projects are reflected in the budgets of the involved provincial and district line departments or administrative units. This is so as to ensure that sufficient public funds are allocated to enable the implementation of certain activities, or that any new financial resources that are being brought in, are included in budget projections.
MODULE M7 – IMPLEMENTING AND FINANCING THE PLAN OF ACTION

Developing concrete projects for the implementation of selected priority actions

No matter how good the watershed planning process has been, and however comprehensive the Plan of Action is as a product, it is ultimately the quality of the individual project proposals that will determine whether the agreed long-term goals and the specific objectives can be achieved. In the Plan of Action it should be specified for which actions concrete projects will be necessary and who will be responsible to elaborate the respective project proposals. There are six important stages in the elaboration of a project proposal:

1. defining the problems
2. setting the objective, outputs and indicators
3. specifying assumptions and risks
4. identifying activities and milestones
5. clarifying responsibilities
6. calculating the project budget
7. writing the project proposal

Financing Watershed Management

Having established a Watershed Management Committee and developed a Plan of Action, it is very important to ensure that both have sufficient long-term funding, and that the committee is able to continue its work into the future. There are basically four tasks to be accomplished to build a sustainable financing base for watershed management: compiling the total budget, carrying out a funding gap analysis, identifying new funding sources, and preparing a financing plan.
Training objectives of this Module

Developing concrete projects for the implementation of selected priority actions

By the end of this part of module M7 the participants are able to:

• Understand the Logical Framework Approach (LFA) and how to use it as a project planning and management tool,
• Formulate objectives and outputs for a concrete project,
• Understand the basics of budget calculation for a project, and
• Develop an operation plan for a project.

Financing Watershed Management

By the end of this part of module M7 the participants are able to:

• Compile the total budget for watershed management including core costs and operational costs
• Identify available funds, funding gaps and potential funding sources,
• Understand the concept and principles of sustainable watershed financing, and
• Prepare a coherent watershed financing plan.

This training module is divided into two complementary training sessions:

Session M7S1: Developing Concrete Projects
Session M7S2: Financing the Plan of Action
SESSION M7S1: DEVELOPING CONCRETE PROJECTS

Training objectives of this session

By the end of the session, the participants are able to

• Understand the Logical Framework Approach (LFA) and how to use it as a project planning and management tool,
• Formulate objectives and outputs for a concrete project,
• Understand the basics of budget calculation for a project, and
• Develop an operation plan for a project.

Session Info

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<td>Materials</td>
<td>Pin boards and flip chart stands, Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens, Copies of an exemplary Plan of Action for watershed management, Copies of the format for a Logical Framework Matrix (logframe)</td>
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<tr>
<td>Handouts</td>
<td>M7S1H1 - Setting the Project's Objective, Outputs and Indicators, M7S1H2 - Specifying Assumptions and Risks, M7S1H3 - Compiling the Information in a Log-frame, M7S1H4 - Identifying activities and milestones, M7S1H5 - Calculating the Project Budget, M7S1H6 - Compiling an operational plan for the project</td>
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Session Guide

1. Explain that in a Plan of Action for watershed management it should have been specified for which priority actions concrete projects will be necessary and who will be responsible to elaborate the respective project proposals (M6S2).

2. Remind the participants that during Module 5 they learned how to collect data and information, based on which water relevant issues have been identified. This data and information has to be reviewed for each project to identify the specific problems, which should be addressed in this project. In some cases it will be necessary to collect specific information through field visits and additional stakeholder surveys.

3. Ask the participants, if anybody has already experiences with the elaboration of project proposals and ask them to share these experiences with their training colleagues. Note the challenges, which the participants faced, on a flip chart and make sure that you will address these challenges in the further training.

4. Give a presentation on the Logical Framework Approach (LFA) based on the information in the handouts and the Resource Kit (see the links above or the CD). Explain that the LFA is a tool that is often used to support the development of concrete project proposals. Introduce the key elements of a logical framework for a specific project (objectives, outputs, indicators and assumptions) and how all these
elements are summarized in a Logical Framework Matrix (Log-frame).

5. Invite the participants to work in groups. Ask them to read the handouts M7S1H1, M7S1H2 and M7S1H3 and discuss open questions within their groups.

6. Select a case study, which includes sufficient information about the problems, which should be addressed in the project proposal. Ask the participants to read the case study and to identify the following elements of the project:
   ✓ What are the specific problems, which should be addressed in the project?
   ✓ What do you want to achieve with this project, in other words: what is the project objective?
   ✓ What has to be achieved to make sure that you can reach this objective, in other words: what are the necessary outputs?
   ✓ What are the assumptions under which these outputs will be sufficient to reach the project objective and how high is the risk that these assumptions are wrong?

   It is recommended that each group will be supported by an experienced facilitator who can provide comments and guidance during the exercise.

7. Ask the participants to fill in the result of their work in the provided log-frame (see handout M7S1H3). Explain that they will learn in module 8, how to formulate the necessary indicators.

8. Invite each group to present their results in the plenary and facilitate a discussion on open questions and comments.

9. Ask the participants to return to their groups, read handout M7S1H4 and select one of the outputs, which they identified. Ask them to identify the main activities that need to be implemented to ensure that this output will be reached. Explain that they will learn in module 8, how to formulate the necessary milestones for each activity.

10. Invite each group to present their results in the plenary and facilitate a discussion on open questions.

11. Give a short presentation on the calculation of a project budget and the different types of cost items, using handout M7S1H5. Ask the participants if anybody has experiences in preparing project budgets and ask them to share their experiences and discuss open questions.

12. Ask the participants to return to their groups and calculate the necessary budget for the implementation of those main activities, which they identified for one output.

13. Invite each group to present their results in the plenary and facilitate a discussion on open questions.

14. Ask the participants, if they know: “What is an operational plan and what should be included in such a plan?” Write all the comments and answers on a flip chart.

15. Then present the example of an operational plan included in handout M7S1H6 and explain the main components and the structure of this plan.

16. Facilitate a discussion on open questions and comments.

17. Explain that this session has introduced the key elements that are required in a project proposal, but that different donors and also the government often have their specific formats for project proposals. Emphasize that it is important to consider these formats, when applying for funding.

18. Summarize the main learning points and check whether the participants reached the training objectives of this session.
HANDOUT M7S1H1: SETTING THE PROJECT’S OBJECTIVE, OUTPUTS AND INDICATORS

The successful implementation of a project requires that those responsible for the project implementation know what they want to achieve and what has to be delivered to make sure that it can be achieved – in other words the objective of the project and its outputs.

It is also important that those responsible for the project implementation are able to assess that the objective is achieved and to monitor the delivery of outputs. This can be done with the help of indicators. The details of how to formulate indicators are explained in Module 8.

Table 8 – Examples of a project objective, the necessary outputs and the respective indicators

<table>
<thead>
<tr>
<th>Project objective and outputs</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective</strong></td>
<td></td>
</tr>
</tbody>
</table>
| To reduce the negative impacts of uncontrolled waste disposal on the watershed functions, environment, living conditions and health of the people living in the watershed area | • In 20... the water quality of the river ‘A’ has been improved. (specific criteria and baseline to be specified in 1. Year of project)  
  • In 20... the number of cases of water borne illness has been reduced by ‘X’ percent within the pilot project area.  
  • ..... |
| **Output 1**                |            |
| In the urban centre ‘X’ the solid waste is collected regularly and stored in a safe waste deposit side. | • In 20... ‘X’ percent of households are participating in the waste collection system.  
  • In 20... the uncontrolled disposal of solid waste is reduced by ‘Y’ percent. |
| **Output 2**                |            |
| Rural communities in the watershed practise a waste separation system. | • In 20... the amount of solid waste in the rural communities of the pilot area is reduced by ‘X’ percent.  
  • In 20... ‘Y’ percent of households in the pilot villages separate the organic part of their solid waste and produce valuable compost.  
  • In 20... a number of ‘Z’ households participate in waste recycling activities and gain an income from selling the waste. |
| **Output 3**                |            |
|                           | • ..... |
HANDOUT M7S1H2: SPECIFYING ASSUMPTIONS AND RISKS

There might be things which cannot be influenced in the framework of a project but which are needed to be in place or happen to make sure that the project’s objective and the necessary outputs can be reached. In other words: while designing the project you assume that these things remain constant or predictable. But there will always be a risk that your assumption is wrong. Therefore, you should specify if this risk is low, medium or high. Table 9 includes some examples of assumptions and the risk implied.

Table 9 - Examples of assumptions and the risk implied

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Output 1</strong></td>
<td></td>
</tr>
<tr>
<td>In the urban centre 'X' the solid waste is collected regularly and stored in a safe waste deposit side.</td>
<td>medium</td>
</tr>
<tr>
<td>• Ongoing support of the responsible government department to organise the collection of solid waste.</td>
<td></td>
</tr>
<tr>
<td>• ...</td>
<td></td>
</tr>
<tr>
<td><strong>Output 2</strong></td>
<td></td>
</tr>
<tr>
<td>Rural communities in the watershed practise a waste separation system.</td>
<td>low</td>
</tr>
<tr>
<td>• The plastic recycling company in the urban centre of 'X' is increasing its capacity as planned.</td>
<td></td>
</tr>
<tr>
<td>• ....</td>
<td></td>
</tr>
<tr>
<td>• ....</td>
<td></td>
</tr>
</tbody>
</table>
The information gathered up to now (project objective, outputs, indicators, assumptions and degree of risk), can be summarized in a logical framework matrix, mostly called log-frame:

Table 10 – Format Log Frame

<table>
<thead>
<tr>
<th>Log Frame</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Project title:</td>
<td>Planning Period:</td>
<td>Prepared by:</td>
<td>Date</td>
<td></td>
</tr>
<tr>
<td>Objective</td>
<td>Outputs</td>
<td>Indicators</td>
<td>Assumptions</td>
<td>Risk*</td>
</tr>
<tr>
<td>1.</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>2.</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>3.</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>4.</td>
<td>...</td>
<td>...</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>5.</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>6.</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>
HANDOUT M7S1H4: IDENTIFYING ACTIVITIES AND MILESTONES

For each output the main activities which have to be implemented to achieve this output, must be identified. Table 11 shows the example of an output and the respective main activities.

Table 11 – Examples of an output and its main activities

<table>
<thead>
<tr>
<th>Output</th>
<th>Main activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output 2&lt;br&gt;Rural communities in the watershed practise a waste separation system.</td>
<td>• Check the options for a garbage separation system.&lt;br&gt;• Check whether certain garbage items (e.g. plastic, paper, metal, etc.) can be marketed.&lt;br&gt;• Organise an awareness campaign about the advantages of waste separation.&lt;br&gt;• ....</td>
</tr>
</tbody>
</table>

To measure the progress along the path towards achieving the output, so called milestones should be formulated. Details concerning the formulation of milestones are explained in Module 8.

It is necessary to be very clear about when particular activities will be carried out and for how long, and when particular milestones are expected to be reached. This provides guidance to those who are responsible for implementing the project, and helps in monitoring its progress and achievements.

The timeline for starting, implementing and finishing activities should be planned on a quarterly basis. Attention must be paid as to how different activities are related to each other, and how they follow each other, because some activities may depend on the completion of others.
For each project activity the necessary budget has to be calculated.

### Table 12: Elements of a project budget

| Personnel and labour other than core staff required to advise, manage and carry out the project | e.g. managerial staff, labour, consultants and other specialists expertise, etc. | Research, surveys and monitoring required to design, monitor or inform the project | e.g. hydrological, biodiversity, ecological, socio-economic, etc. |
| New or additional capital and infrastructure required for the project to take place | e.g. buildings, roads, paths, boundary markers, etc. | Maintenance, repairs and running of new and additional capital, infrastructure, equipment and materials | e.g. buildings, roads, vehicles, boats, etc. |
| New or additional equipment and materials required to carry out the project | e.g. computers, binoculars, GPSs, vehicles, boats, etc. | Outreach and consultation required to design, carry out and report on the project | e.g. workshop costs, per diems, transport allowances, etc. |
| Materials and documents required to report on and publicise the project | e.g. posters, books, reports, etc. | Other operational costs required to complete the project | e.g. per diems, transport allowances, communications, utilities, internet, etc. |

Based on the budget requirements for individual activities the project budget should be summarised according to specific budget lines (e.g. personnel and labour, infrastructure, equipment and material, etc.) and should include overheads for administrative costs and a certain percentage for unforeseeable events.
HANDOUT M7S1H6: COMPILING AN OPERATIONAL PLAN FOR THE PROJECT

It is useful to summarize the following information in an operational plan for the respective project:

- Activities for each output,
- Milestones for each activity,
- Implementation period of each activity,
- Responsible actors for the implementation of the activity,
- Personnel requirements,
- Costs of material and equipment, as well as operating costs

Together with the Log-frame, the Operational Plan provides a good overview over the project and forms the basis for monitoring and evaluation.

Table 13 - Format Operational Plan

<table>
<thead>
<tr>
<th>No.</th>
<th>Activity</th>
<th>Milestone</th>
<th>Implementation period (dates)</th>
<th>Responsibility</th>
<th>Personnel requirements (personnel months)</th>
<th>Costs of material and equipment</th>
<th>Operating costs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>own</td>
<td>external</td>
<td>Additional staff</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Output 1: (see logframe)

1.1
1.2
1.3
1.4

Output 2: (see logframe)

2.1
2.2
2.3
SESSION M7S2: FINANCING THE PLAN OF ACTION

Training objectives of this session

By the end of the session, the participants are able to:

- Compile the total budget for watershed management including core costs and operational costs
- Identify available funds, funding gaps and potential funding sources,
- Understand the concept and principles of sustainable watershed financing, and
- Prepare a coherent watershed financing plan.

Session Info

<table>
<thead>
<tr>
<th>Time</th>
<th>4 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td>Presentation, group work and discussions</td>
</tr>
<tr>
<td>Aids</td>
<td>computer and LCD projector</td>
</tr>
</tbody>
</table>
| Materials| Pin boards and flip chart stands
          | Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens |
| Links for more info | http://wiki.mekonginfo.org/index.php/504_Financing_Natural_Resources_Management
              | http://wiki.mekonginfo.org/index.php/505_Payments_for_Environmental_Services
              | http://wiki.mekonginfo.org/index.php/505TA_Advantages_Limits_Payments_Environmental_Services
              | http://wiki.mekonginfo.org/index.php/504TA_International_experience_in_river_basin_funds_and_funding |
| Handouts | M7S2H1: Compiling the Total Budget
           | M7S2H2: Carrying Out a Funding Gap Analysis
           | M7S2H3: Identifying Funding Sources
           | M7S2H4: Preparing a Financing Plan |

Session Guide

1. Explain that there are basically 4 tasks to be accomplished to build a sustainable financing base for watershed management:
   ✓ Compiling the total budget including the core costs for the work of the watershed committee and the operational costs for the implementation of the Plan of Action,
   ✓ Carrying out a funding gap analysis,
   ✓ identifying funding sources, and
   ✓ preparing a financing plan.

2. Invite the participants to work in groups and based on their experiences list the potential core costs for the work of the watershed committee on cards.

3. Collect all cards and pin them on a pin board, grouping similar costs together. Present these costs to the participants and facilitate a discussion on open questions and comments. Consider the information in M7S2H1 to make sure that the main core costs have been identified.

4. Explain that in addition to the core costs for the work of the watershed committee, the operational costs
for the implementation of the Plan of Action have to be summarized. Clarify:

✓ That the operational costs are the expenditures that are needed to implement the main activities, which have been identified in the Plan of Action, and

✓ The operational costs include the expenditures, which have been calculated for specific project proposals.

5. Based on handout M7S2H2 give a presentation on the purpose and principles of a Funding Gap Analysis and facilitate a discussion on open questions and comments.

6. Invite participants to return to their groups. Ask each group to discuss potential funding sources and note them on cards.

7. Collect the cards from the different groups, present them and group them according to the following categories:
   ✓ Government programs and special funds,
   ✓ Overseas grants and projects,
   ✓ Self-generated revenues, and
   ✓ Private sector funding.

8. Based on the information in handout M7S2H3 and the resource kit (see the links above or the CD), check whether all important funding sources have been mentioned, clarify with the participants if those funding sources, which are not in their list could probably be tapped in future.

9. Facilitate a discussion about the main challenges of getting funds from the different funding sources and note these challenges on a flip chart.

10. Present the main tasks of developing a Financing Plan based on the information in handout M7S2H4. Facilitate a discussion on open questions and comments.

11. Summarize the main learning points and check whether the participants reached the training objectives of this session.
HANDOUT M7S2H1: COMPILING THE TOTAL BUDGET

It is impossible to secure funding for watershed management unless the costs are known, and therefore the preparation of budgets for both the work of the Watershed Management Committee (core costs) and the implementation of the Plan of Action (operational costs) is required.

The core costs of the Watershed Management Committee are calculated by looking at how resources, infrastructure, equipment and other inputs will have to be provided in order to maintain the existence of the Watershed Management Committee. These core costs are mainly, but not entirely, the recurrent costs of the agencies involved, such as those shown in table 14.

Table 14 – Examples of core costs

| Salaries and mandatory benefits | for all permanent and long-term contract staff | Costs of office consumables | for stationery, toner, tea, coffee, |
| Bonus and incentive payments | for both permanent and temporary staff | Maintenance / running of equipment & infrastructure | for vehicles fuel and repair, buildings maintenance |
| Utility costs of the administrative buildings | for water, electricity, gas, garbage collection, cleaning, etc. | Allowance for depreciation | for periodic replacement of equipment, vehicles and buildings |
| Communication costs | for telephone, fax, internet, etc. | Essential business travel | for meetings, procurement, exchange |

That the operational costs are the expenditures that are needed to implement the main activities, which have been identified in the Plan of Action. The operational costs include the expenditures, which have been calculated for specific project proposals.
Having established what the Watershed Management Committee and the Plan of Action will cost to implement, it is necessary to work out how far these costs can be funded from existing budgets. Unless Watershed Management Committees have a clear idea of the funding needs for water-shed management projects, it will not be possible to request new funds - either from within or outside government.

Government resources should in most cases be used to fund the core costs of running Water-shed Management Committees, and may even be sufficient to cover some of the project costs in the Plan of Action. Usually there however remains a balance which cannot be covered by existing budget allocations. For this reason it is necessary to calculate how much funding must be obtained from elsewhere.

In order to calculate this, a funding gap analysis should be carried out. This is very simple. For the time period covered by the Plan of Action, a list of already-secured funding (e.g. from public funds, donor projects or other sources) should be compiled, and then compared with the total budget. The amount remaining (the total budgeted minus the already secured funding) is the “funding gap” - in other words the additional funding that needs to be found in order to implement the Plan of Action. This formula is shown in figure 10.

Figure 10 – Formula to calculate the funding gap

As well as helping to plan fundraising, the funding gap analysis provides the basic information for prioritising expenditures. In most cases it will be impossible to source external funding for all the projects that are necessary to implement the Plan of Action. It is therefore usual to indicate the relative priority of different projects, so as to be able to decide on how available funds should be allocated and used, and to decide how to go about fund-raising. A good way is to prioritise projects according to whether they are essential, important or can be postponed.
HANDOUT M7S2H3: IDENTIFYING FUNDING SOURCES

Having established how much additional financing is required to implement the Plan of Action, it is necessary to identify where these funds might come from. Requests for funds can then be prepared by the Watershed Management Committee on this basis.

There are four main sources of financing which can, potentially, be accessed for watershed management projects (in addition to the routine annual budget submissions that are made by the provincial or district line departments, who are members of the Watershed Management Committee), as shown in figure 11. Of course it is impossible to list each and every funding opportunity that might potentially be available for funding Plans of Action, and these will vary in different countries and for different sites, but this gives an idea of the range of possibilities that exist.

Figure 11 - Overview of funding sources

<table>
<thead>
<tr>
<th>Special funds &amp; programmes</th>
<th>Overseas grants &amp; projects</th>
<th>Self-generated revenues</th>
<th>Private sector funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>environmental funds</td>
<td>bilateral grants (from donor governments)</td>
<td>tourism charges</td>
<td>sponsorship from businesses</td>
</tr>
<tr>
<td>forest development funds</td>
<td>multilateral funds (e.g. GEF, UNDP, World Bank, etc.)</td>
<td>land, resource and water user fees</td>
<td>awards, prizes and special grant funding</td>
</tr>
<tr>
<td>river basin funds</td>
<td>foreign foundations</td>
<td>payments for environmental services (e.g. water, tourism, biodiversity)</td>
<td>biodiversity offsets</td>
</tr>
<tr>
<td>climate change funds</td>
<td>NGO grants &amp; partnerships</td>
<td>carbon finance (REDD, voluntary offsets, CDM)</td>
<td>environmental fines and penalties</td>
</tr>
<tr>
<td>programmes or trust funds on e.g. reforestation, poverty reduction, water management, etc.</td>
<td>research funds</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Governments in most countries operate a variety of special funds and programmes that can be accessed to provide funding for particular projects, outside routine annual budget allocations of line ministries and their departments. In many cases these are concerned with topics that are very relevant to watershed management: for example environmental protection, forest development, river basin management, climate change, or poverty reduction.
- Various types of overseas grants and projects provide funding windows for projects that are related to watershed management. These include small grants, competitive awards, larger projects, research funding and partnerships with foreign NGOs.
- Watersheds already earn a wide range of self-generated revenues, or have the potential to do so. Examples of existing revenues include fees and charges from tourism and from the use of land, water and resources such as forestry, mining and hydropower. As many of these revenues depend on the continued good management of the watershed, there is a strong rationale for arguing that at least a certain proportion of the income generated should be reinvested in watershed management. In addition, there are several new opportunities for generating revenues which are associated with watershed goods and services - such as through Payments for Environmental Services, REDD and other carbon finance schemes.
- Private sector funding can be used in a variety of ways for watershed management. Many companies and businesses (particularly international ones) have active Corporate Environmental and Social Responsibility programmes which provide funds for community-level and environmental activities. Sometimes companies are also willing to donate sponsorship for particular equipment or activities,
often in return for advertising or publicity. In addition, private sector funding can also be tied to the operations of companies in a particular watershed which affect the natural environment. Examples include biodiversity offsets, fines and penalties for environmental damage.
Last, but not least, sustainable financing requires a coherent and strategic approach to planning. Just as the Plan of Action specifies what has to be achieved and how this should be achieved, so there should be an accompanying Financing Plan which identifies the budget for the Plan of Action, and shows how funding will be accessed, managed and used to implement the necessary actions and respective projects in the watershed.

Typically a Watershed Financing Plan needs to consider how much the Plan of Action costs to implement, what funding and income currently exists, where the major funding gaps lie, which are the highest funding priorities, what kinds of financing mechanisms might be used to raise funds, and finally what actions are required to access and manage funding for the Plan of Action (see figure 12).

Figure 12 - Content of a Watershed Financing Plan

We can distinguish six tasks in developing a Financing Plan. The first four tasks have already been described. The final tasks, after putting all this information together, is to:

- compile the specific project proposals according to the different formats of the funding source which should be addressed for this project and
- clarify the institutional responsibilities that are necessary to access, manage and use funding for the Plan of Action.
MODULE M8 – MONITORING AND EVALUATION

Monitoring and evaluation are important while implementing individual projects and while implementing the Plan of Action as a whole. In addition, it is important to monitor the health of the watershed.

Training objectives of this module

By the end of the training module M8 the participants understand:

• The difference between monitoring and evaluation, and
• The importance of:
  - Involving all relevant stakeholders in monitoring and evaluation,
  - Monitoring and evaluating the implementation of individual projects as well as the Plan of Action,
  - Monitoring the health of the watershed.

In addition, at the end of training module M8 the participants have a basic knowledge on how to:

• Design monitoring and evaluation systems,
• Monitor and evaluate the implementation of individual projects as well as the Plan of Action, and
• Monitor the health of the watershed

This training module is divided into five complementary training sessions

Session M8S1: Introduction concerning monitoring and evaluation
Session M8S2: Monitoring of individual projects and of the Plan of Action
Session M8S3: Evaluating the Plan of Action and individual projects
Session M8S4: Monitoring of the watershed health
SESSION M8S1: INTRODUCTION CONCERNING MONITORING AND EVALUATION

Training objectives of this session

By the end of session M8S1, participants understand:

- The difference between monitoring and evaluation,
- The importance of involving stakeholders in the monitoring and evaluation, and have a basic knowledge on how to
- Design monitoring and evaluation systems.

Session Info

<table>
<thead>
<tr>
<th>Time</th>
<th>1.5 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td>Presentation, group work and discussions</td>
</tr>
<tr>
<td>Aids</td>
<td>computer and LCD projector</td>
</tr>
</tbody>
</table>
| Materials | • Pin boards and flip chart stands  
• Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens |
| Links for more info | http://wiki.mekonginfo.org/index.php/600_Monitoring_Summary  
| Handouts  | M8S1H1 - Introduction concerning monitoring and evaluation |

Session Guide

1. Ask the participants, if they have experiences with monitoring and evaluation. Collect their comments and ideas on a flip chart concerning:
   - What is the difference between monitoring and evaluation?
   - What is the purpose of monitoring and evaluation?
   - Who should be involved in monitoring and evaluation?

2. Check the answers on those questions and provide background information based on handout M8S1H1 concerning:
   - What is the purpose of monitoring the implementation of individual projects and how often should it be done?
   - What is the purpose of monitoring the implementation of the Plan of Action and how often should it be done?
   - What is the purpose of evaluating the implementation of individual projects and what is the purpose of evaluating the implementation of the Plan of Action?
   - What is the advantage of involving stakeholders and beneficiaries in monitoring and evaluation and how should this be organized?

3. Explain that monitoring and evaluation need not to be expensive or complicated, nor do they require specialists. The complexity and extent should be adapted to fit the needs.

4. Present the questions, which should be answered when designing a monitoring system for individual projects or for the Plan of Action. Explain that the same questions are relevant, when designing an evaluation system. In addition, explain that there may be specific requirements from the government or from specific donors, which have to be considered.

5. Facilitate a discussion on open questions.

6. Summarize the main learning points and check whether the participants reached the training objectives of this session.
HANDOUT M8S1H1: INTRODUCTION CONCERNING MONITORING AND EVALUATION

Monitoring is performed while a project is being implemented. It should be done on a regular basis e.g. every 3 or 6 months. The aim of monitoring is to assess if the implementation is on track and to identify potential problems in a timely manner and take corrective action, when necessary. It is like watching where you are going while riding a bicycle; you can adjust as you go along and ensure that you are on the right track.

Evaluation is a process of assessing what a project has achieved, particularly in relation to objectives at a given time. It is like stepping outside and observing the situation from a mountain to get a clear overview. This can be done at mid-term and it should be done at the end of a planning period. The purpose of evaluation is to assess the quality of the work done as well as to identify experienced constraints and bottlenecks hindering the project in achieving its objective. Evaluation is also essential for drawing lessons from the implementation experience and using the lessons in future planning processes. Finally, evaluation should provide a clear picture of the extent to which the intended project objective has been realized.

The participation of stakeholders and beneficiaries in monitoring and evaluation will motivate these groups to share the responsibility for achieving the agreed objectives of the Plan of Actions or an individual project. To allow this to happen, the long-term goal and especially the objectives of the Plan of Action should be set and the indicators should be selected in consultation with stakeholders and beneficiaries, so that they are jointly owned. The same is true for every project, its objective and outputs, as well as its indicators.

Monitoring and evaluation need not to be expensive or complicated, nor do they require specialists. The complexity and extent should be adapted to fit the needs.

The following questions should be answered when designing a monitoring system for the Plan of Action or for individual projects:

• What do you need to monitor in order to manage the Plan of Action or an individual project?
• How will the required information be gathered and organized and whom do you want to involve in the monitoring?
• How will you use the gathered information to make improvements?
• How and to whom do you want to communicate what?

The same questions should be answered when designing an evaluation system.
SESSION M8S2: MONITORING OF INDIVIDUAL PROJECTS AND OF THE PLAN OF ACTION

Training objectives of this session

By the end of session M8S2, participants have a basic knowledge on how to:

- Monitor the implementation of individual, and
- Monitor the implementation of the Plan of Action.

Session Info

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
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<td>Methods</td>
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<td>Aids</td>
<td>computer and LCD projector</td>
</tr>
<tr>
<td>Materials</td>
<td>Pin boards and flip chart stands, Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens</td>
</tr>
<tr>
<td>Handouts</td>
<td>M8S2H1 - Monitoring of individual projects, M8S2H2 - Monitoring of the Plan of Action</td>
</tr>
</tbody>
</table>

Session Guide

1. Explain that milestones and indicators should be used to check if the project is still on the right track or if any modifications are necessary (use handout M8S2H1 and the respective information in the Resource Kit and in the GWP toolbox as background information, see the link above or the CD). Clarify that:
   - Milestones should be formulated for each activity to measure if the activity is implemented in time and if the respected result (e.g. study or workshop report, training, contract, etc.) is available.
   - Indicators on output level should be formulated to measure to which extent the output has been reached and if the planned activities are still sufficient to reach the intended changes.
   - Indicators on objective level should be formulated to measure to which extent the objective has been reached and if the outputs, which had been planned are still sufficient to reach the intended change.

2. Ask the participants to read handout M8S2H1 and facilitate a discussion on open questions. Explain that this session will concentrate on the formulation of indicators and milestones.

3. Divide the participants into the same groups, which elaborated log-frames in the training session M7S1. Provide copies of the elaborated log-frames for each group.

4. Ask the groups to identify 3-4 indicators on the level of the project objective and 1 or 2 indicators for each output in their log-frame based on the information in handout M8S2H1. It is recommended that each group will be supported by an experienced facilitator who can provide comments and guidance during the exercise.

5. Invite the groups to present their results in the plenary and facilitate a discussion on open questions and comments.

6. Ask the participants to return to their groups and provide them a copy of the document they elaborated in the session M7S1 concerning 1 output and the respective activities. Ask them to identify milestones for
those activities.

7. Invite each group to present their results in the plenary and facilitate a discussion on open questions and comments.

8. Explain that in addition to indicators and milestones, the assumptions and risk levels, which have been formulated in the log-frame, should be regularly monitored.

9. Give a presentation on the monitoring of the Plan of Action based on handout M8S2H2.

10. Facilitate a plenary discussion about the presentation and open questions.

11. Summarize the main learning points and check whether the participants reached the training objectives of this session.
HANDOUT M8S2H1: MONITORING OF INDIVIDUAL PROJECTS

Indicators and milestones can be used to measure the extent to which the project objective and the outputs have been reached and if the project is still on the right track.

The following questions should be considered for formulating indicators:

- What change is intended?
- Who is this change meant to affect?
- To what extent should the change take place?
- Which qualitative aspects of the change should be borne in mind?
- By when and, if appropriate, where should the change occur?

Indicators should be formulated on the level of the project objective and on the level of project outputs:

- **Indicators on objective level** measure the changes which the project intends to bring about with the outputs. Normally 3–4 indicators are needed to describe the intended changes.

  **Examples:**

  From 2014 onwards, the water level in the river 'X' below the hydropower dam does not drop below 'Y' meters at the peak of the dry season.

  In 10/2015 the irrigation farmers, including 'Y'% of women headed households, in the pilot area state that they received sufficient water during the dry season in 2014 and 2015 to cultivate 'X'% of their rice fields.

- **Indicators on output level** measure what has been achieved with the set of activities.

  **Examples:**

  By 02/2012, a regulation for the use of water has been elaborated and the involved stakeholders, including 'X'% of women in the target community, acknowledge this regulation as acceptable conflict resolution measure in the pilot region.

  By 01/2013 the water use regulation has been approved by the district authority.

A distinction must be made between the indicator and its target value. A person's physical fitness can, for instance, be measured by their performance in the high jump. However, the indicator must attribute different performance values (height jumped in centimetres) for children and for adults. So, whereas the indicator addresses what is achieved, the target value refers to the quantity, how much is achieved.

Reference or initial values are necessary in order to interpret indicators:

- increase in the percentage of the provincial budget earmarked for environmental awareness-raising, from x% (initial value) to (target value)%
- increase in the number of female trainees from x% (initial value) to (target value)%

The target value states when satisfactory project performance can be considered to have been achieved. To do so, the reference or initial value should be stated in addition to relative changes. Reference or initial values may be: baseline values, development trends, values taken from a comparable situation, or a defined quality. If they are not available when the project starts, a baseline study or respective survey must be performed as soon as possible. However, target values have to be defined on a realistic basis; they should indicate a significant change but still remain achievable.

- Milestones have to be formulated on the level of activities.
Examples:

In 10/2011 the assessment report of the water conflicts in the pilot area is available.

In 11/2011 the report of the stakeholder workshop is available.

*X*% of the participants of the workshop were women.

During the monitoring it should also be checked if the assumptions, which have been made concerning the objective and the outputs, are still valid and if there are any changes concerning the risk that the assumption is no longer valid in future.

To ensure that monitoring results are used to support steering, accountability and reporting processes as well as learning, the teams should regularly discuss the monitoring results and link them with other management processes, particularly with a view to adjusting strategies and updating operations planning and reporting.
A long-term goal and specific objectives have been formulated for the Plan of Action.

Indicators on the level of the long-term goal as well as on level of specific objectives measure the changes which the Plan of Action intends to bring about with the identified set of actions. Normally 3-4 indicators for the long-term goal and for each objective are needed to describe the intended changes (see examples in Table 15). The questions which have been formulated for the monitoring of indicators on the objective and output level of individual projects are also relevant for the monitoring of the long-term goal and objectives of the Plan of Actions (see handout M8S2H1).

Table 15 – Examples of indicators for a long-term goal and for specific objectives

<table>
<thead>
<tr>
<th>Example of a long term goal</th>
<th>Example indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equitable and pro-poor development and economic growth in Watershed 'X' based on the sustainable use of natural resources and conservation of water-shed values</td>
<td>By year 20... &quot;X&quot; percent of the target population (male and female) have increased their average monthly income by &quot;Y&quot; percent and poverty has been reduced by &quot;Z&quot; percent. At the same time there is no negative effect on the environment. By the year 20... the rural migration to urban centres decreases by &quot;X&quot; per-cent (target population increasingly finds local sources of income).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Example of specific objectives</th>
<th>Example indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>• To reduce industrial, urban and agricultural water pollution</td>
<td>In the year &quot;Y&quot; the level of water pollution from industrial plants, urban centres and agriculture in the watershed is reduced by &quot;X&quot; per-cent.</td>
</tr>
</tbody>
</table>

It is important to keep in mind that the Plan of Actions is only contributing to the long-term goal of the watershed. It covers only a certain time period (3-4 years) while the long-term goal is usually formulated for 20 years. In addition external factors are having an influence. Therefore, the monitoring will only provide information if the Plan of Actions is contributing to this goal.

On the other side, the indicators on the level of specific objectives measure the intended changes during the time period of the Plan of Actions.

In addition to the monitoring of the indicators, a variety of additional aspects have to be monitored during the time period of the Plan of Actions. It should be assessed if the identified issues are still relevant or if e.g. new developments or political decisions are changing the framework conditions. The effects of climate change should also be observed. They may for example increase the frequency or extend of floods.
SESSION M8S3: EVALUATING THE PLAN OF ACTION AND INDIVIDUAL PROJECTS

Training objectives of this session

By the end of session M8S1, participants have a basic knowledge on how to:

- Evaluate the implementation of the Plan of Action as well as the implementation of individual projects, and
- Understand the importance of this evaluation.

Session Info

<table>
<thead>
<tr>
<th>Time</th>
<th>1.5 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td>Presentation, group work and discussions</td>
</tr>
<tr>
<td>Aids</td>
<td>computer and LCD projector</td>
</tr>
<tr>
<td>Materials</td>
<td>Pin boards and flip chart stands</td>
</tr>
<tr>
<td></td>
<td>Colored cards, brown paper for pin boards, flip chart paper, pins and marker pens</td>
</tr>
<tr>
<td>Links for more info</td>
<td><a href="http://wiki.mekonginfo.org/index.php/600_Monitoring_Summary">http://wiki.mekonginfo.org/index.php/600_Monitoring_Summary</a></td>
</tr>
<tr>
<td>Handouts</td>
<td>M8S3H1 - Evaluating the Plan of Action and Individual Projects</td>
</tr>
</tbody>
</table>

Session Guide

1. Give a presentation based on handout M8S3:
   ✓ Remind the participants about the difference between monitoring and evaluation,
   ✓ Explain why a mid-term evaluations of the Plan of Action and of individual projects might make sense,
   ✓ Explain that an evaluation at the end of the planning period should always be done to improve the design of future projects or future Plans of Action based on the results of those evaluations,
   ✓ Present the list of questions mentioned in the handout on flipcharts, one for the Plan of Action and one for individual projects.

2. Invite the participants to work in groups, ask them to check the questions concerning the evaluation of a Plan of Action and – based on their experiences – to identify:
   ✓ Potential reasons, why a Plan of Action might fail to achieve the objectives, which had been identified,
   ✓ Potential factors, which might have a positive or negative influence on the contribution a Plan of Action can provide to achieve the long-term goal, and
   ✓ Potential risks for the long-term sustainability of the results of a Plan of Action?

3. Invite the groups to present their results in the plenary and facilitate a discussion about their findings, any open questions and comments.

4. Ask the participants to return to their groups, check the questions concerning the evaluation of individual projects and – based on their experiences – to identify:
   ✓ Potential reasons, why a project might fail to reach its objectives,
   ✓ Lessons learned, which should be considered when designing projects to ensure that projects have a sustainable impact, and
   ✓ Potential factors, which might influence the impact of a project on solving a critical issue.
5. Invite the groups to present their results in the plenary and facilitate a discussion about their findings, any open questions and comments.

6. Summarize the main learning points and check whether the participants reached the training objectives of this session.
HANDOUT M8S3H1: EVALUATING THE PLAN OF ACTION AND INDIVIDUAL PROJECTS

An evaluation should be planned from time to time to assess the success of the individual projects and of the Plan of Action. Evaluation is not an ongoing process like the monitoring. It can be done at mid-term and at the end of a planning period. The results of mid-term evaluations should be used to check whether the planned actions of the Plan of Action are still sufficient to reach the intended objectives. Mid-term evaluations of individual projects should be used to check whether the identified outputs can be reached and if they are still sufficient to reach the objective. Evaluations at the end of planning periods should be used to improve the design of future projects or future Plans of Action for the watershed.

What is assessed is primarily the situation as it can be measured or established at the time of the evaluation.

Concerning the evaluation of the Plan of Action some important questions are:

- To what extend are the specific objectives of the Plan of Action achieved?
- What are the reasons why the objectives are or are not achieved?
- Which contribution provided the Plan of Action on the way to achieve the long-term goal?
- Are there other factors, which provided a contribution or which had a negative influence on the way to achieve the long-term goal?
- Are there any risks for the long-term sustainability of the results of the Plan of Action?

Concerning the evaluation of an individual project some important questions are:

- To what extent is the project objective achieved?
- What are the reasons why the project objective is or is not achieved?
- Which contribution provided the project in achieving the aspired solution of the respective critical issue?
- Are there other factors, which contributed to solving the critical issue or which had a negative influence concerning this issue?
- Are there any risks concerning the long-term sustainability of the results of the project?
SESSION M8S4: MONITORING OF THE WATERSHED HEALTH

Training objective of this session

By the end of session M8S3, participants have a basic knowledge on how to:

- Monitor the health of a watershed to identify potential problems and update the Plan of Action accordingly.

Session Info

<table>
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</thead>
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| Links for more info | http://wiki.mekonginfo.org/index.php/603_Design_and_Planning_Monitoring_Programmes  
                       http://wiki.mekonginfo.org/index.php/602CS_WSM_Indicators_Use_Worldwide_Review  
                       http://wiki.mekonginfo.org/index.php/604_Methods_and_Instruments  
                       http://wiki.mekonginfo.org/index.php/603TA_Selection_Criteria_Permanent_Monitoring_Sites |
| Handouts   | M8S4H1 - Monitoring of the Watershed Health |

Session Guide

1. Give a presentation on monitoring of watershed health based on handout M8S4H1 and the respective information in the Resource Kit (see the link above or the CD) and other information, which you might have available.

2. Facilitate a plenary discussion to clarify open questions and ask participants to contribute their experiences concerning:
   - Which watershed conditions should be monitored?
   - Where and from whom can you get the necessary data and information?
   - Who should be responsible to gather, store, update and analyze this data?
   - Are there any lessons learned which should be considered in establishing a system for monitoring the health of watersheds?

3. Invite the participants to work in groups and ask them to brainstorm on
   - Potential indicators for the monitoring of watershed health, which could be used to track changes in the ecological, economic and social watershed functions and to assess the risk level of the watershed.
   - Who should be involved in the identification and monitoring of such indicators?

4. Invite the participants to present their results in the plenary and facilitate a discussion on open questions and comments.

5. Summarize the main learning points and check whether the participants reached the training objectives of this session.
The basis of watershed management is a good knowledge of the status of the watershed’s health. The amount of data and information needed for the management of the watershed depends also on the defined risk level (see “Determining the risk levels of watersheds”, page 22). The higher the risk, the more and more detailed data would be required. A watershed committee must be able at any time to report on this status and therefore needs a well-established monitoring system. The committee itself, however, will not always be able to gather the required data alone. The system must be set up in a participatory way where provincial and district line departments, communes, NGO and other institutions or individuals as stakeholders take over certain responsibilities for data collection and information on events impacting watershed functions. It is then the task of the Watershed Committee to set up – as part of the monitoring system – the location, person and instrument for the reception, quality control, storage, and treatment of the gathered data and information, for troubleshooting when data are delayed or missing, and for technical training and backstopping.

In a watershed context, monitoring is a comprehensive and long-term effort that observes and keeps track of the water quality and quantity, as well as other relevant watershed conditions. It comprises the continuous collection of data by employing consistent methods. At first, one or two indicators may be all that is possible. Over time however, it will be possible to develop a package of indicators that will show the status of water bodies, water related resources, the land surface, the economic and social conditions in watersheds, as well as trends that show the direction of development.

Indicators for watershed monitoring need to be able to reliably track changes in the ecological, economic and social watershed functions. Indicators and in particular their target values should be determined through negotiations between the stakeholders. They should be selected in such a way that they can be measured with an appropriate effort given the existing financial, logistical and human capacity constraints. The majority of watershed monitoring efforts use indicators that measure watershed health. Watershed monitoring also employs indicators to monitor impacts on the economic and social watershed functions besides using indicators to monitor impacts on the ecological functions. Indicators should specially take into account such elements that determine the risk level of the watershed.

Watershed monitoring can be conducted through monitoring programmes which can be established for a multitude of purposes like those outlined above. However, in the context of watershed management, they need to be tailored to the specific characteristics of a given watershed, its water bodies and land uses. It is therefore essential to have adequate knowledge of the hydrology and ecology of the water bodies that are being monitored, and to duly consider the interactions between water and different land uses. The data gathered in step 4 should be thoroughly analysed if they can be used as a baseline for monitoring purposes and how they need to be complemented.