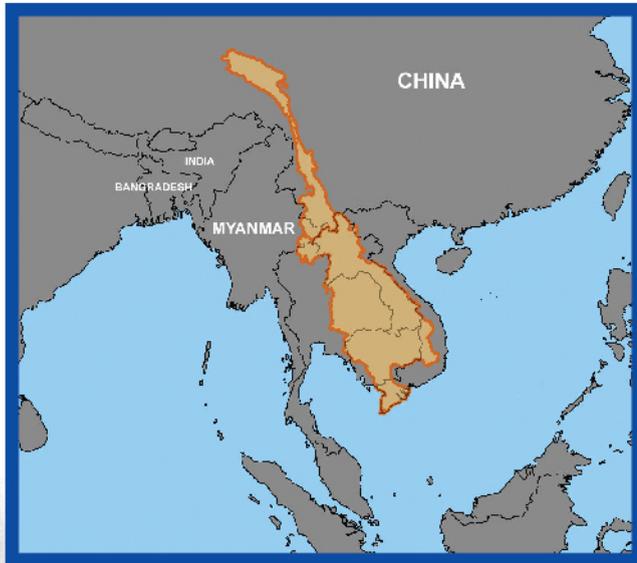




RSAT

Rapid Basin-wide Hydropower
Sustainability Assessment Tool

Guidelines for Transboundary Dialogues



May 2017

Joint Initiative



Rapid Sustainability Assessment Tool: Guidelines for Transboundary RSAT Dialogues

Mekong River Commission

May 2017

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1 Introduction

International disagreements over the rights and uses of rivers and water resources are one of the most common causes of conflict between countries. The International Court of Justice has been asked to provide advice and resolve such conflicts, which often involve the use of water resources for hydropower by one country with losses or damages to the water resources in another country.

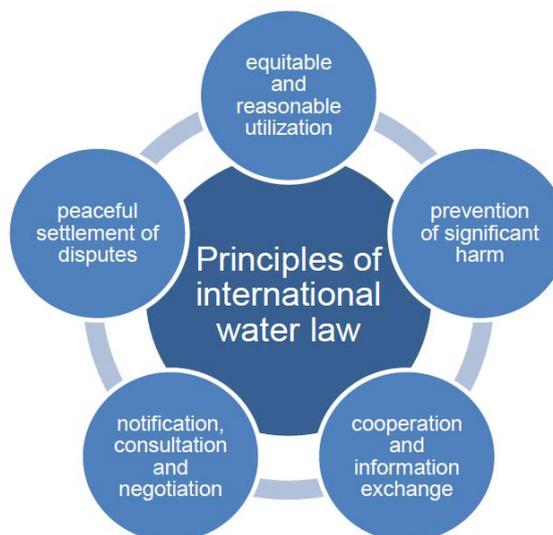
There are two international conventions that address the sharing of water and rivers, the 1992 UNECE Water Convention (Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes 1992) and the UN Convention on the Law of the Non-navigational uses of International Water-courses (1997). For the Mekong region, the latter is significant because in August 2014, Vietnam became the 35th State to ratify the convention, thus bringing it into force. As a global framework convention, its central objective is to provide a flexible legal framework within which more specific basin and/or watercourse treaties can be developed, providing more nuanced governance mechanisms via context-specific provisions and related non-binding policy frameworks.

The Watercourse Convention (UNWC) sets out several guiding principles for cooperation between watercourse states on the use, management and protection of international watercourses as shown in Figure 1.

Figure 1: Principles of international water law

The main categories of rights and obligations set forth in the Convention are:

- 'equitable and reasonable utilization and participation';
- 'prevention of significant harm';
- 'cooperation';
- 'regular exchange of data and information';
- 'no inherent priority of any one kind of use over other kinds of uses';
- 'notification of planned measures with possible adverse effects on other riparian States';
- 'protection and preservation of ecosystems';
- 'prevention, reduction and control of pollution';
- 'notification of and cooperation with respect to emergency situations'.



The 1995 Mekong Agreement is an example of a basin specific treaty adopted by the Lower Mekong Basin (LMB) states of Cambodia, Lao PDR, Thailand and Viet Nam, and was accompanied by the establishment of a robust inter-governmental basin institution, the Mekong River Commission (MRC). Since 1995, MRC has developed 5 procedures for dealing with basin-wide issues:

- **Procedures for Data and Information Exchange and Sharing (PDIES)**, approved 2001: aim to operationalise data and information exchange among the MRC Member Countries.
- **Procedures for Water Use Monitoring (PWUM)**, approved 2003: aim to provide a comprehensive and adaptive framework and process to support effective monitoring of intra-Basin water use and diversion.
- **Procedures for Notification, Prior Consultation and Agreement (PNPCA)**, approved 2003: aim to provide steps for the MRC Member Countries to support the establishment of the Rules for Water Utilisation and Inter-Basin Diversions.

- **Procedures for the Maintenance of Flows on the Mainstream (PMFM)**, approved 2006. The Procedures are applied to diversions, storage releases, or other actions of a permanent nature undertaken by the member States which may have a significant impact on the flows of the mainstream during the wet and dry seasons.
- **Procedures for Water Quality (PWQ)**, approved 2011: are designed to establish a cooperative framework for the maintenance of acceptable/good water quality to promote sustainable development in the Mekong River Basin.

Guidelines have been developed for three of these Procedures (PDIES, PWUM and PNPCA). The Mekong River Commission (MRC) Joint Platform provides a mechanism for consultation and hydro-diplomacy in the implementation of these Procedures.

There have also been several initiatives for the development of guidelines for transboundary rivers and tributaries in the Lower Mekong Basin

- **Transboundary River Basin Management: Mekong2Rio Addressed Water, Energy and Food Security Nexus** – a synthesis of expert opinion on how to address the transboundary dimension of water, energy and food interconnection as well as the challenges rapid human-made development and environmental changes pose to the sustainable management of river basins.
- **Guidelines on Transboundary EIA**, (under development by Environment Division)
- **Preliminary Design Guidance for Proposed LMB Hydropower Schemes**, provides performance targets, design and operating principles for mitigation measures, as well as compliance monitoring and adaptive management.

Since 2006, the MRC, with WWF and ADB have developed the Rapid Sustainability Assessment Tool (RSAT) for encouraging assessment, consultation and dialogue about sustainable hydropower development in the sub-basins of the Mekong. The RSAT has been trialled and in several of tributary basins in each of the four countries and its use in a transboundary context in the shared river basins of the LMB provides a strong tool and process for pre-empting or managing potential conflicts over the water resources in a river basin shared between two or more of the member countries.

These Guidelines provides guidance for the application of RSAT in a transboundary context allowing a structured dialogue between two or several countries over the development of hydropower in a shared river basin in a more sustainable way. It recognises that an RSAT dialogue is not a decision-making process and the recommendations for action would have to be endorsed by the relevant agencies and organisations; it is therefore a tool for identifying common issues and solutions in a more participatory way.

The first transboundary RSAT dialogue was held between Vietnam and Cambodia in December 2016 in Buon Ma Thuot. The dialogue considered the shared Sre Pok river basin, and built upon earlier dialogues for the Upper Sre Pok in Vietnam and Lower Sre Pok in Cambodia. The experience from this pilot Tb RSAT dialogue has helped to improve and refine these Guidelines.

2 Establishing objectives for transboundary dialogues

There are several different reasons for establishing a transboundary RSAT dialogue. It is important to clarify these at the outset, because they will determine the modality, participants and the course of the RSAT dialogue.

The overarching aim might be the **improved sustainability of hydropower management and development in the shared river basin.**

Within this overarching aim there may be other specific objectives:

- **Shared experiences of sustainable hydropower development** – this objective is probably the easiest and least controversial. Participants would discuss and compare how each country has tried to address the sustainability issues relating to hydropower development in the basin and what lessons they have learnt. This could include sharing of experiences in conducting RSAT dialogues in their parts of the shared basin.
- **Improved joint planning of hydropower development in the river basin** – this objective could lead to consideration of the complementarity of laws, rules and regulations together with data sharing and other measures to ensure that hydropower development in a basin progresses more sustainably, even including the development of joint projects, risk management and benefit sharing.
- **Improved management of hydropower operations in the river basin** – this objective may be more appropriate when much of the development of hydropower has already occurred, but there are concerns and uncertainties about operation of the hydropower plants in both countries, especially around hydrological and environmental flows, water quality, fisheries and dam safety.
- **Screening of hydropower projects in a river basin** – in this objective, a transboundary RSAT process would help in the selection and siting of different options for hydropower, especially for dams in cascade.
- **Effective stakeholder consultation for transboundary EIA or SEA of hydropower development in a shared river basin** – this objective would use the RSAT process as a contributory tool providing a focus for these transboundary studies. Stakeholder consultations can use the Transboundary RSAT process to scope the issues of concern of hydropower projects that should be considered in a transboundary EIA or SEA.
- **As part of the PNPCA process for mainstream Mekong developments** – There are several uses for RSAT transboundary processes under this objective
 - Using the Performance statements as a checklist of best practice to assess relevant documentation for proposed hydropower projects put forward for PNPCA
 - Internal review dialogue of proposed hydropower projects
 - Public consultation and dialogue processes for PNPCA proposed projects
- **Effective stakeholder consultation for establishing a joint river basin organisation** – this objective could help to identify the strategies and action points that a joint RBO should undertake to improve the sustainability of hydropower in the basin. Follow-up RSAT dialogues could monitor progress of the RBO.

There will be other objectives more specific to the two countries and the shared basin. These will have to be developed during preliminary discussions once an agreement in principle has been made to hold an RSAT dialogue.

3 Modalities for Transboundary RSAT dialogue

Three very different modalities can be developed for establishing a transboundary RSAT dialogue between two countries which will depend upon the objectives and which will determine the type of participants. These are:

1. **Intergovernmental RSAT dialogue.** This is a diplomatic style dialogue between relevant agencies with detailed knowledge and expertise about the development and management of hydropower in the shared river basin. In addition to national level agencies, participants should also come from the provincial governments sharing the basin.
2. **Multi-stakeholder RSAT platform** with participants from government, both national and local, private sector and civil society in the two countries. This modality is more like a consultation and awareness raising process, sharing concerns and opinions across the two countries.
3. **Private sector dialogues between hydropower operators and developers in a transboundary river basin.** This use of RSAT would enable hydropower operators and developers to discuss aspects of mutual co-operation and coordination between themselves.

For the purposes of this guidance, the focus will be upon the Intergovernmental RSAT Dialogue.

4 Lead/Coordinating organisations

The dialogue can be organised and led by one regional organisation such as the Mekong River Commission, or an existing transboundary river basin organisation. Alternatively, one country could initiate the process and invite the other to participate in a transboundary RSAT dialogue.

Within each country, there should be one Lead/Coordinating agency responsible for the coordination and leading the process. In the past, in country RSAT workshops have been organised by the National Mekong Committees, but it could easily be organised by any of the participant organisations listed in section 5.

The Lead/Coordinating agencies in each country would be responsible for:

- Selecting appropriate participants and providing orientation and preparation to Tb dialogue
- Organising working groups within the country
- Organising data collection – both through the participants and/or through contracting consultants for this purpose
- Organising the Transboundary RSAT Dialogue if it is to be held in the country
- Organising a site visit to a hydropower plant in the basin, if this is required
- Reporting back and follow up of recommended actions with the concerned agencies.

It is necessary to have a series of preliminary meetings or working groups between the dialogue participants of each country in the basin to prepare for the main dialogue. In addition, several Tb RSAT dialogue sessions may be required to cover all the relevant topics, or to ensure good follow-up to the recommendations for action.

5 Participants

Experience of organising RSAT workshops has shown that the best dialogues occur with about 20 participants, though with larger numbers the group may have to be sub-divided for some discussions followed by feedback from each group. It is recommended that for transboundary dialogues there should be at most 10 persons from each country so that the dialogue can occur within a group plenary session.

For intergovernmental RSAT dialogues the participants would be expected to be mid-ranking officials with good technical knowledge and experience of the hydropower and water resource issues that concern the agencies that they represent. It is suggested that the agencies represented would include:

- Ministry/departments concerned with energy and hydropower planning and development

- Ministry/departments concerned with water resources planning and development
- Ministry/departments concerned with environmental and natural resource management
- Ministry/departments concerned with agriculture, forestry and fisheries
- Ministry/departments concerned with socio-economic development and social safeguards
- Ministry of Foreign Affairs
- Regulatory agencies, e.g. for electricity, hydropower and dam safety, EIAs etc.
- Provincial agencies covering similar aspects
- River Basin organisations

It is important that the participants from the above and other agencies contribute their own knowledge and experience during the RSAT dialogues, so that they can provide further information to that presented from the data collection. For the most effective dialogues, it is important that participants be knowledgeable about their own sectors and about the character and the issues relevant to hydropower development in the transboundary river basin. The larger the transboundary river basin, it becomes more important for the different stakeholders to have a good knowledge of the basin and hydropower development issues and concerns. Representatives of the different stakeholder groups should be selected for their knowledge and experience and what they can contribute to the dialogue, rather than to learn about hydropower development or the river basin.

The nature of the discussion is to understand the issues and problems technically presented by the dialogue party(s). All participants are expected to contribute actively to the discussions, which should not be confined to statements between the heads of delegations.

6 Preparation and Process

6.1 Preparatory joint transboundary RSAT meeting

Once it has been agreed in principle to hold an RSAT Dialogue on the shared basin between the two or more countries, a preparatory meeting should be held between the two or more Lead/Coordinating agencies. The purpose of this meeting is to:

1. Agree the objectives for the RSAT Tb dialogue
2. Agree areas and topics for discussion
3. Identify potential participating organisations/participants and expertise required
4. Identify national consultants who can assist in the collecting of relevant information about hydropower development in the shared river basin, and present findings and/or gap analysis in the Tb RSAT Dialogue
5. Establish principles for transboundary dialogue
6. Identify the expected outcomes and follow-up
7. Optional site visit, if there are particular issues to be observed on the ground

The transboundary implications of the ten RSAT topics and sub-topics are explained in Annex 2. The choice of the topics for discussion can be achieved in two ways. The first way uses an overview presentation of the 10 topics and associated sub-topics, followed by a discussion and ranking by the participants on which have the highest priority in the particular context of the shared sub-basin.

The second way depends upon a discussion of the issues that most concern each country in relation to hydropower development in the shared basin. From a discussion about the causes and effects of these issues, the most relevant topics can be identified.

Since the dialogue on each topic will take about half a day, it is suggested that the 3 or 4 most important topics relevant to priority transboundary issues be selected for the first Transboundary RSAT Dialogue.

6.2 Establishing a working group in each country made up of key participants

On return to the country after the joint preparatory meeting has been held, the Lead/Coordinating agency should establish an RSAT working group. This working group should meet at least twice before the transboundary dialogue to familiarise the participants with the RSAT topics and process. In particular, the participants should focus on the topics and sub-topics to be considered.

They should review the data coming from their own country, which may be from earlier RSAT assessments, both within the shared basin or other basins in the country. If the RSAT assessments were conducted a long time ago, issues and data from that assessment should be validated. They should identify what other data should be collected and analysed of relevance to the topics being considered.

The participants with the most relevance to the different topics should prepare a short presentation on each topic setting out the data and 'Transboundary' issues of concern for their country. These will be presented at the Transboundary RSAT Dialogue meeting.

The national consultants identified for data collection, gap analysis and presentation of evidence at the Tb RSAT dialogues, should take part in these working group meetings, to receive guidance and advice on sources of evidence and people/organisations to interview, and to present their evidence. National consultants should be familiar with RSAT processes and the types of evidence required in relation to the RSAT Performance Statements for the topics being considered. They do not necessarily have to be experts in the topics.

The period between working group meetings and the Tb RSAT Dialogue should be relatively short, so that the topics and the evidence collected remains fresh in the minds of the participants and still valid. If there are several working group meetings, there should be sufficient time between them for data collection and analysis and preparation of the evidence.

6.3 Data collection and gap analysis

Guidance on the data collection process is described in the RSAT Manual¹. If an RSAT assessment has already been carried out in the sub-basin in each country, much of the data and gap analysis carried out earlier can be used. The recommendations from those national sub-basin assessments will also provide an indication of important transboundary aspects. Additional data may need to be collected to supplement what is already there or to update it if there have been significant changes in legislation and regulations, or changes in hydropower plants constructed and operating in the basin. It is important to keep the data collected focused on what is needed for the transboundary analysis of each topic. Reference to Annex 2 which has descriptions of the transboundary implications of each topic and sub-topic will assist those assigned to collect relevant data.

It is suggested that the working group members with most knowledge and experience of the topic areas be assigned to collect the data, and then present it at working group session before the main dialogue meeting.

Every effort should be made to gather evidence that is relevant to hydropower development in the specific transboundary basin, as well as national laws, rules and regulations and general sector plans.

¹ current version is RSAT 2016 Edition

Transboundary dialogues are most effective when evidence and examples from the basin are discussed. This may require the national consultants to spend several days interviewing different local level agencies and collecting basin-specific data.

7 Transboundary RSAT Dialogue meeting

7.1 Agenda

The agenda for the meeting should be developed to cover the different topics to be discussed in half day sessions, generally the agenda of TB RSAT dialogue could include:

Introductory Session: Introductions and setting the scene

1. Confirming objectives and expected outcomes of the dialogue
2. Overview of RSAT topics and approaches (this is important for those that have not been involved with RSAT before)
3. Comparative stakeholder analysis – identifying the comparable institutions with Rights, Interests and Responsibilities (RIR) for sustainable hydropower development and operation for the basin in each country – this is an important session because it may be used later to identify the agencies for which actions to improve sustainability of hydropower development may be recommended
4. Plenary discussions and clarifications about the process

Topic Sessions: Topic discussions - half day sessions covering each topic in turn – see below

Final session: Completion and recommendations

1. Summarising the discussions on each topic
2. Finalising and enhancing the recommendations from each topic
3. Follow-up on recommendations and future RSAT dialogue meetings
4. Reflections on the RSAT process
5. Closure

7.2 Site visit

It has been found that a site or field visit for dialogue participants is especially beneficial for all RSAT dialogues. If there are specific issues to be observed on the ground, it may be helpful for participants to organise a site visit to a hydropower plant, reservoir or downstream area in the shared basin. If there is a proposed joint venture to develop a hydropower plant between both countries, this might provide a focus for the discussions. If a site visit is required, it should be organised early in the proceedings – on the first afternoon or on the second day, so that the experience can contribute to the discussions. The site visit also provides a good opportunity for informal discussions and understanding between the dialogue participants.

7.3 Process for topic discussions

The topic discussions may be organised along the lines shown below:

1. Overview of each topic presented by facilitator
2. Short presentation by each national team to present their understanding of the topic, the data collected and any issues of concern.
3. Facilitated dialogue between both parties
4. Possible break out discussions for each country team to discuss amongst themselves the issues and/or technical matters learned from the dialogue party(s).

5. Development of action points/plan with responsibilities identified for the agencies represented in each national group

It is suggested that each topic discussion should last for at least half a day.

7.4 Location

Ideally the RSAT Dialogue should take place within the shared basin, especially if a site visit is anticipated. If no site visit is required, the RSAT Dialogue can be held at any mutually convenient location. If it is held outside the shared basin, it is even more important that some participants come from the basin provinces, so that knowledge and experience of the basin situation can be actively included in the discussions.

7.5 Time requirements

If there are four topics being discussed with an introductory session and a completion session, this would last 3 days, or 4 days with an optional site visit.

Overall from the decision to organise a Transboundary RSAT Dialogue, the process might take 3 – 4 months, allowing:

- 1 month to set up the joint preparatory meeting
- 2 months for working group meetings and data collection and/or validation
- 1 month for the Dialogue and reporting.

7.6 RSAT Dialogue Facilitator

It is recommended that an RSAT Dialogue facilitator be engaged to manage the process and guide and encourage participants in their discussions. The facilitator should be neutral, knowledgeable about sustainable hydropower, and skilled in facilitating discussions and negotiations, and obviously acceptable to both country teams. The tasks of the facilitator would be to present the content and key aspects of each topic, and be able to explain the sustainability concerns to the participants. He/she would guide the participants through the process, suggesting the tools to be used, moving the discussions on when they appear to be becoming blocked, handling conflict and/or confrontation professionally, and ensuring that the recommended action points are relevant and SMART.

The RSAT Dialogue facilitator may be international or regional, or from one of the participating countries and should be:

- Familiar and experienced with RSAT processes, methods and tools
- Skilled in facilitating dialogues, negotiation or mediation processes
- Knowledgeable about at least one of the topic areas under discussion
- Fluent in the common language for the dialogue and at least one of the languages of the countries sharing the river basin
- Competent in preparation of the Tb RSAT Dialogue report, together with the national consultants.
- Acceptable to both countries participating in the Tb RSAT Dialogue – the Dialogue countries may be consulted for their agreement.

8 RSAT topics and criteria with transboundary implications

There are elements of relevance for transboundary dialogues in all topics, though not all sub-topics need be considered. The criteria and performance statements of the most relevant sub-topics are found in Annex 1. Three sub-topics specify transboundary considerations.

- Topic 1, Sub-topic 1. Transboundary institutional capacity
- Topic 3. Sub-topic 2. Transboundary economic analysis
- Topic 4. Sub-topic 1. Transboundary benefit sharing

The following topics and sub-topics have some transboundary implications

- Topic 2, Sub-topic 2. Options assessment, siting and design
- Topic 5, Sub-topic 2. Assessment and management of basin-wide social impacts
- Topic 6, Sub-topic 1. Assessment and management of basin-wide environmental impacts
- Topic 7, Sub-topic 3. Co-ordinated hydropower operations
- Topic 7, Sub-topic 4. Downstream and environmental flows (Integrated Basin Flow Management)
- Topic 7, Sub-topic 5. Flood and drought management
- Topic 8, Sub-topic 2. Management of impacts and sediment resources
- Topic 9, Sub-topic 2. Management of impacts and fisheries resources
- Topic 10, Sub-topic 2. Community safety and emergency response

It is suggested that in addressing these topics, the participants focus on two of the criteria. The perspective of **River Basin Planning and Management** which focuses on the IWRM-based principles and practices in river basin planning and management and the collection of basin wide baseline data to inform these processes. The aim is to consider the different aspects of hydropower in a shared river basin. The other perspective is **Regulatory and governance** which focuses on the regulatory and institutional framework for hydropower development and water resource management and enforcement at different levels from local to national. A comparison of the regulatory and institutional frameworks for sustainable hydropower between the two countries will help identify how the different regulations can be used and the institutions works together.

The other two criteria **Energy / power sector planning and regulation** which focuses on power sector planning, emphasizing hydropower planning and regulation and **Hydropower Projects** which focuses on the plans, studies and management actions of all hydropower developers and operators in the basin at all stages of the project cycle (project identification, selection, planning, design, construction and operation), may be more useful in a transboundary context, when the aim of the dialogue is the development of shared projects or of transmission of power between the two countries or in assessing the risks and benefits from hydropower development in the two countries.

Topic 1, Sub-topic 1. Transboundary institutional capacity. This is one of the most important transboundary topics, especially if the aim is to establish a transboundary river basin organisation. It allows for a comparison of the legal and regulatory frameworks in each country, to ensure compatibility and the RSAT Dialogue process helps to identify what needs to be done to make it easier to work together on managing the shared river basin more sustainably.

Topic 3. Sub-topic 2. Transboundary economic analysis. This topic explores the contributions of hydropower in the basin in both regional and economic growth in the context of international agreements and economic development plans for the basin or the region. It considers the wider economic development in the shared basin and the economic roles of energy, hydropower and water resources development. If there have been any economic studies undertaken as part of development planning or Strategic Environmental Assessment these should be part of the discussions. It looks towards a transboundary governance framework for regional cooperation on water and energy planning and management.

Topic 4, Sub-topic 1. Transboundary benefit sharing. This topic considers the risks and benefits that come from hydropower development and explores ways in which these can be shared between the two countries in the shared river basin. It may use Cumulative Impact Assessments, Transboundary EIAs and SEAs and to identify risks and benefits to be shared. It may lead to mutually agreed frameworks for countries sharing a river basin to consult on the transboundary costs and benefit sharing options, including options for regional grid interconnections and joint ownership of hydropower projects. If such frameworks are being developed a comparison of national mechanisms and procedures between the two countries would be needed to ensure that international obligations for risk and benefit sharing are being met. A defining feature of transboundary benefit sharing, in its various forms, is the approach and the mechanisms for sharing benefits is fundamentally based on negotiated outcomes and Agreements. No international law “prescribes” what needs to be shared, or in what manner.

Topic 2, Sub-topic 2. Options assessment, siting and design. This topic covers the site selection process and optimisation of hydropower, especially when there are plants sited and operated in a cascade which stretches across the borders. It would also cover multi-criteria analysis and risk assessments on both sides of the border and try to ensure that the sites and configurations of projects have avoided significant risks with the basin as a whole, and addressed sustainability criteria. The application of common or compatible guidelines for siting, design and operational mitigation measures in both parts of the shared basin. Sharing of the design and operational information on the different plants in the basin, including monitoring data, would be part of the transboundary dimensions of this topic. The implications of transboundary navigation may be considered here, together with facilities for navigation across dams and through reservoirs.

Topic 5, Sub-topic 2. Assessment and management of basin-wide social impacts. This topic would be used in a transboundary context if there are potential or actual impacts on local communities, either upstream or downstream across the borders because of hydropower development, e.g. livelihood impacts because of changes in flow regimes, water quality issues or blockage of fish migration upstream and downstream. These issues should be included in transboundary EIAs, cumulative impact assessments and SEAs, with appropriate management measures to address impacts across the borders. In the event of adverse social impacts resulting from a hydropower plant in one country, what measures are in place to assess and compensate riparian communities in the other country.

Topic 6, Sub-topic 1. Assessment and management of basin-wide environmental impacts. Like the Topic no 5, this topic would be used in a transboundary context if there are environmental issues, especially water quality or changes in ecosystem services across the borders. Transboundary EIAs, cumulative impact assessments and SEAs would highlight any potential issues. It would include the monitoring of environmental parameters, both baseline and during construction and operation of hydropower plants, and most importantly the sharing of monitoring results between the two countries. This is important because regular sharing and comparing of water quality information for example provides an ongoing reference point in the event of an incident that causes damage in one or the other country.

Topic 7, Sub-topic 3. Co-ordinated hydropower operations. The hydrological sub-topics lie at the heart of sustainable hydropower and this topic concerns the coordination of operations in a series of hydropower projects, in cascade or of more separated plants upstream and downstream in the two countries. Coordination of flow releases is critical for effective optimisation of hydropower generation in different plants, and for dam safety and for flood and drought management. Coordination is often difficult to achieve with different dam owners, and it is even more difficult if the hydropower plants are located in different countries with different regulatory regimes.

Topic 7, Sub-topic 4. Downstream and environmental flows (Integrated Basin Flow Management).

This sub-topic deals with the rights and requirements of downstream countries to receive the hydrological flow regimes that they need to maintain the ecological services of the river, and the obligations of the upstream country to ensure that these are delivered. Often this is done through the construction of a re-regulation dam to ensure a more balanced flow passes across the border. The determination of the cross-border flow regime should be based on agreements between the two countries, and will need to be monitored with the results shared regularly if not in real time.

Topic 7, Sub-topic 5. Flood and drought management. This topic covers the role of hydropower projects in managing the extremes of flow – floods and droughts. To be effective there is a need for coordination across the borders in a shared basin to provide warnings of potential flood events, and the releases of water when the spillway gates are opened. Direct communication mechanisms need to be in place both at national level and in the basin provinces downstream to provide such warnings. In the case of drought, the downstream country may need to request the release of water to alleviate some of the impacts of drought, especially on agriculture in the downstream part of the basin.

Topic 8, Sub-topic 2. Management of impacts and sediment resources. Sediments are often the forgotten part of the flow regime, carried along by the hydrological flows. They are important for the management of bank and bed erosion downstream of hydropower plants, and the fine sediments contribute to fertility and stability of floodplain and delta areas. Transboundary EIAs and Cumulative Impact Assessments should consider the quantities of sediment trapped and the reduced quantities passed downstream across the border. Sediment management measures may have to be incorporated to address these losses, and these may also have their impacts e.g. on water quality during releases. The results of monitoring of sediments and impacts such as bank and bed erosion, should be shared between the countries.

Topic 9, Sub-topic 2. Management of impacts and fisheries resources. The main transboundary issue relating to fisheries is the impacts on fish migration, both upstream and downstream. A hydropower project in the downstream country could block important fish migrations to the upstream country, and a hydropower plant in the upstream country may prevent fish from reaching spawning grounds upon which their populations and productivity depend. Transboundary EIAs, SEAs and Cumulative Impact Assessments should assess the impacts upon fish migration, and measures put in place to mitigate such impacts. Cross border consultation would be required to agree and implement such measures.

Topic 10, Sub-topic 2. Community safety and emergency response. This sub-topic is often one of great concern to downstream countries, who need to be reassured that adequate dam safety precautions are put in place, both during construction and operation of hydropower plants in the country upstream. Dam break analysis should include assessment of impacts in the downstream country. Emergency procedures and early warning systems should be extended across the borders, with direct communication systems put in place for riparian communities downstream in the other country.

9 Principles and codes of behaviour

9.1 RSAT Principles

The Principles upon which the RSAT is based are described in the Introduction of the RSAT manual. These are all important and applicable in a transboundary context. They include:

- Co-operation in international river basins

- Integrating river basin planning and hydropower regulatory and management frameworks
- Ensuring robust governance for sustainable development at all levels
- Collecting baseline data to inform decisions and measure change
- Using collaborative and multi-disciplinary approaches to options assessment and hydropower siting and design
- Engaging stakeholders and protecting rights and entitlements
- Equitably sharing the benefits and costs of development
- Addressing poverty and food security in hydropower basins
- Maintaining basin wide ecosystem integrity
- Open access and variety of uses

9.2 RSAT as a tool for hydro-diplomacy

Hydro-diplomacy is a negotiation among riparian countries to achieve shared benefits. The dialogue needs to be inclusive, embracing all concerned stakeholders and all sectors to achieve a sustainable goal. In hydro diplomacy, a negotiation platform, generally a river basin organisation, has a crucial role in bringing about a consensus among the stakeholders. In the Mekong region, the MRC acts as one of the most important negotiation platforms, but as river basin organisations are established there will be other platforms for particular sub-basins of the Mekong.

Hydro-diplomacy requires scientific and technical experts to work hand-in-hand with national and local politicians, decision-makers and stakeholders to reach negotiated agreements for solutions that can be implemented and which will endure.

The RSAT is a dialogue tool rather than a negotiation tool. In a dialogue, the discussion can be open ended, aiming to identify mutually agreed solutions to common issues. By contrast, in a negotiation both parties would have positions on what they would like to get out of the process and this can be conflictual and be counterproductive for identifying mutually agreed solutions to common issues.

9.3 Codes of behaviour in Transboundary RSAT Dialogue

To make an effective transboundary RSAT dialogue it is important that all participants come to the meeting in the spirit of trying to find mutually-agreed, sustainable solutions to the common problems and issues identified during the process. Participants should be mindful of the common aim of these dialogues which is **improved sustainability of hydropower development, operation and management in the shared river basin.**

This means that they should bring attitudes and patterns of behaviour to the discussions that:

- Allows them to discuss difficult questions and challenges in constructive ways;
- Bring diverse perspectives and positions together to co-create novel and useful solutions to the many challenges that confront water resources and energy development in the Mekong Region;
- Respect the diversity and different perspectives that participants, representing different sectors and stakeholder groups from both countries bring to the table;
- Recognise that mutual respect and patience are essential ingredients for effective dialogue
- Emphasise the skills for listening to the concerns of other participants and countries rather than lecturing or defending the record or experience of one's own agency or country.

10 Useful tools

10.1 RSAT Toolkit

Several different tools are described for the different stages of the RSAT process, including data collection and gap analysis, stakeholder analysis, assessing strengths and weakness (SWOT), cause and effect problem analysis, developing SMART actions and recommendations. These are described in some detail with templates and checklists in the RSAT Manual.

For **data collection and gap analysis**, the tools that provide checklists for the performance statements for the different sub-topics relevant to transboundary issues will be useful to keep the data focussed.

For **stakeholder analysis**, the tools that allow a comparative identification of the institutions and agencies with roles and responsibilities for sustainable hydropower development in both countries will be essential. This will enable the participants to clearly see which institutions/agencies are the counterpart agencies on each side of the border, and to identify where there are noted gaps in the different roles and responsibilities.

During the dialogue, the key tool to compare the experiences of each country in its efforts to work towards more sustainable hydropower is the **SWOT analysis**. After each country presentation on the data and evidence on the topic being discussed, a plenary SWOT analysis of each country's experience would highlight areas of common ground and where experience of one country can inform the actions to be taken by the other country. It also helps to identify common issues or gaps that need to be addressed or filled.

Cause and effect, problem analysis is a useful dialogue tool when there is a particular issue that has been identified. In some situations, the two countries may have already identified several issues that they would like to discuss. In such cases, where the issues are more clearly defined, a cause and effect analysis – Problem trees, the 5 Why's and Fish bone analysis – all provide a framework for discussion. Identifying the underlying causes helps to define the actions that need to be taken.

The tool for developing SMART actions and recommendations helps to make mutually agreed actions implementable. It has been found that while the overall recommendations may be wider ranging, the actions should be implemented by the organisations represented by the participants. This means that in any follow-up dialogues, it is easier to report back on what has been undertaken and achieved.

10.2 Other MRC tools

Other tools that have been developed by the MRC Initiative on Sustainable Hydropower (ISH) and which may be of use in collection of evidence for a transboundary RSAT Dialogue include:

- **Identification of Ecologically Sensitive Sub-Basins for Sustainable Development of Hydropower on Tributaries (ISH01)**. The need to move towards sustainable development of hydropower on tributaries is highlighted through identifying sub-basins with high ecological value to be protected compared to those sub-basins where hydropower can be developed with limited environmental impacts or where adequate mitigation can be applied
- **Guidelines for the Evaluation of Hydropower and Multipurpose project portfolios (ISH02)** This covers current ways of planning hydropower schemes need to adequately take into account their wider social, economic and environmental implications. The key to integration of all costs and benefits into the national strategic planning approach is to identify credible values for these costs and benefits and then to “internalize” them into the normal economic analysis used to compare hydropower and multi-purpose options. Multi-purpose uses of dams need to be considered at the outset of project and basin planning.

- **Benefit Sharing Options for Hydropower on Mekong Tributaries (ISH13)**. Although most hydropower projects include some measures of compensation for the people resettled from the project sites, these constitute the bare minimum and are usually a one-off package covered under the costs of the project financed by the developer. In contrast, benefit sharing consists of a range of long-term mechanisms that governments apply based on an agreed regulatory framework.
- **Development of Guidelines for Hydropower Environmental Impact Mitigation and Risk Management in the Lower Mekong Mainstream and Tributaries (ISH0306)** – From a basin-scale perspective, hydropower information needs include information about the availability and condition of the water resource and its linkages with environmental and socio-economic conditions in the basin, how these are changing over time, and how they may change under future hydropower developments. These inputs inform hydropower project siting and design, prediction of changes relating to the project, and development, application and evaluation of mitigation and management measures. This information provides a common basis for constructive discussions by communities and Member Countries on the implications of hydropower development.

11 Outcomes and reporting

11.1 Outcomes

The outcomes of such a Transboundary RSAT dialogue should include clearly identified recommendations to fill any gaps or address particular issues. These recommendations, which should be as specific as possible in terms of which organisations in both countries should undertake the action and when it should be completed by. However, such recommendations tend to become a “wish list” and the Dialogue is not a decision-making event; so, the results of the dialogue should be presented to the relevant decision makers to convince them to take the necessary action. It is therefore helpful to ask each participant to say what they themselves or their agencies can do to contribute towards these recommendations, even if that involves trying to convince the decision makers.

11.2 Reporting format

Each RSAT dialogue will require a written report, which will be different depending upon the objectives and topics discussed. Nevertheless, the following table of contents can be used to guide the format of the report.

1. Introduction
2. Details of the Transboundary RSAT dialogue
 - 2.1. Results of preliminary meeting
 - 2.2. Date and location of dialogue
 - 2.3. Participants and agencies represented
 - 2.4. Agenda and topics discussed
3. Overview of the shared river basin and status of hydropower development
4. Stakeholder analysis of roles and responsibilities of relevant agencies in each country
5. Topic discussions (to be repeated for each topic/sub-topic)
 - 5.1. Summary of data and evidence from both countries
 - 5.2. SWOT or gap analysis results
 - 5.3. Problem analysis
 - 5.4. Recommendations for action.
6. Evaluation of Transboundary RSAT Dialogue and process
7. Conclusions with summary of recommendations and action points

11.3 Involving decision makers

Higher level decision makers are unlikely to be involved directly in a Tb RSAT Dialogue. However, their agreement and approval to hold such a dialogue will be required, and the report of the dialogue should be shared with them. The executive summary could be developed as a policy brief for wider distribution.

It is also important that the recommendations of the Tb RSAT Dialogue be sent to the responsible agencies identified. This should be done by the lead or coordinating agency, and by participants representing the agency responsible for the recommendations (if they have taken part in the dialogue). It is suggested that at the end of the dialogue, each participant should be asked to commit to a series of actions to take the recommendations forward; the least of these is to report about the Tb RSAT process and the resulting recommendations for action, especially those which concern their own agency.

If appropriate a follow-up briefing of the decision makers from the lead/coordinating agency and the agencies identified as being responsible for recommended actions could be held to present the Tb RSAT Dialogue and its findings.

11.4 Follow-up

Follow-up is the final stage of the RSAT process. In transboundary dialogue this will involve follow-up in both countries sharing the river basin. Follow-up actions may include:

- Ensuring recommendations for action reach the responsible agencies identified during the RSAT Dialogue
- Discussing and refining the recommendations with the responsible agencies to make sure that they are practical and can be included in their work
- Following-up implementation of the recommendations for action

After six months to a year, it may be agreed to hold further transboundary RSAT Dialogues between the two countries to discuss other topics or to review progress.

12 Further reading

A number of recent, locally relevant publications will be helpful in understanding transboundary dialogues and in developing RSAT dialogue skills.

- MRC 2015, *Mekong-2-Rio Report*
- MRC 2016, *Rapid Sustainability Assessment Tool – The manual for application*,
- MRC Initiative on Sustainable Hydropower (ISH) 2014, *Guiding Considerations on Transboundary Monitoring for LMB Hydropower Planning and Management*. <http://www.mrcmekong.org/assets/Publications/Reports/MRC-Guiding-Considerations-for-Transboundary-Monitoring-for-LMB-Hydropower.pdf>
- GIZ 2014, *Transboundary Cooperation and Hydropower Development – a Training Manual for the Network for Sustainable Hydropower Development in the Mekong Countries*. <http://star-www.giz.de/fetch/6Cg6X01M00agMB00Qe/giz2014-0142en-transboundary-cooperation-hydropower.pdf>
- IUCN 2012 *Transboundary Water Governance: Adaptation to Climate Change*, edited by Juan Carlos Sanchez and Joshua Roberts. <https://portals.iucn.org/library/sites/library/files/documents/IUCN-EPLP-no.075.pdf>

- IUCN 2015 *Hydro-diplomacy training: International water law and regional cooperation – a report on the proceedings of the BRIDGE hydro-diplomacy training, Siem Reap, Cambodia 27 – 28 April 2015* <http://www.3sbasin.org/publication/download-documents.html>
- IUCN 2015 *A window of opportunity for the Mekong Basin: The UN Watercourses Convention as a basis for cooperation - A legal analysis of how the UN Watercourses Convention complements the Mekong Agreement* <http://www.3sbasin.org/publication/download-documents.html>
- IUCN *Strategic priorities for transboundary water cooperation in the Sekong, Sesan and Sre Pok (3S) Basins.* <http://www.3sbasin.org/publication/download-documents.html>

Annex 1: Evolution of the Guidelines for Transboundary RSAT Dialogues

These Guidelines for Transboundary RSAT Dialogues have been developed as an addition to the main RSAT Manual 2016 Edition. In that manual, transboundary RSAT dialogues were identified as one of the potential uses for the RSAT tool. These Guidelines were drafted alongside the process for the 2016 edition, and submitted for comment at a consultation meeting with representatives from the National Mekong Committees.

At the same time the guidelines were trialled during the implementation of the first transboundary RSAT Dialogue between Cambodia and Vietnam on the transboundary Sre Pok river basin which took place in December 2016. Prior to that meeting a series of joint preparatory meetings both between the two countries and working group meetings within each country, as outlined in Chapter 6.

After the Sre Pok transboundary dialogue, the Guidelines were revised presented for discussion at a meeting with all the National Mekong Committees and the national consultants assisting in the Sre Pok dialogue in March 2017. They have been finalised to take into account the comments arising, as shown below.

Comment	Action
1. In the RSAT document, the topic related to 'Navigation' need to be more prominent and visible particularly in RSAT TB Assessment Dialogue despite the fact that <i>'Navigation' is already covered in Topic 2: Options assessment, siting and design; -</i>	Sentence added under topic 2
2. The content of RSAT TB dialogue guideline should be strengthened by adding more connection to 1995 Mekong Agreement; and the 5 Procedures on Water Utilizations	Done
3. Obviously, the number of recommended 'Participants' will be met. However, it crucial to provide a description for the required qualification, skills and experiences. In the future that will be useful in the case that TB RSAT would scale up to the level of basin wide because then there will be the needs for participants with strong knowledge and experiences;	Done
4. A chapter in the RSAT TB dialogue guideline that capture information on Socio-economic, environment, etc., synthesizing all the important of triple-bottom line issue should be added.	This chapter could be placed before the Outcome;
5. RIR rights, interests and responsibilities. Ecosystem services	Done
6. The required qualification for the Facilitator should be clearly described. For example, it should be well defined in term of capacity in technical area and/or in any other needed areas relevant to the expertise required to assist effectively the assessment of a specific topic; as well as his/her role in the capacity building activities. The Facilitator's role and responsibility should be	Added paragraph

<p>clearly described. Likewise, the origin (International or Regional) of the required facilitator should be mentioned. With respect to the selection of the Facilitator, it is recommended to consult the Dialogue Countries for their agreement.</p>	
<p>7. Useful Tools, trade-off mechanism; multi-criteria decision analysis</p>	<p>Added in ISH01, 02, 013 & 0306</p>
<p>8. MCs also suggested the team to learn from other Transboundary Teams within the MRC e.g. TbEIA by Environment Division and Joint Platform (for the implementation of the five MRC procedures).</p>	<p>Done</p>

Annex 2: Performance statements of Topics and sub-topics with transboundary relevance

Topic 1, sub-topic 1: Transboundary institutional capacity

This sub-topic covers the institutional capacity to manage sustainable hydropower development within a transboundary basin or sub-basin shared between two countries with differing laws and regulations, levels of development of hydropower and information.

The performance statements for the four criteria

A. River basin planning – A transboundary river basin organisation (RBO) exists within an agreed framework for transboundary basin cooperation and information collection and storage. Procedures and mechanisms exist for countries to notify and consult for hydropower projects on international rivers. Countries comply with their obligations and consult in good faith.

B. Energy / power sector planning and regulation – National energy agencies and regulatory authorities are represented in and contribute to transboundary basin planning processes.

C. Hydropower projects – Studies relating to hydropower projects on international rivers are implemented within agreed frameworks for transboundary co-operation. These frameworks also deliver transboundary communication and co-ordination during the hydropower operations stage.

D. Regulatory and governance – National laws and regulations are compatible with regional and international agreements, plans and policies and include provision for transboundary impact assessment and consultation for projects on international rivers; regulations are enforced.

Examples of evidence - national legislation, policy and regulations; RBO governance framework; budgets and resourcing plans for Line/implementing agencies and RBOs; Transboundary procedures, e.g. data sharing, notification; evidence of meetings; hydropower plans, SEA reports, monitoring and auditing reports; compliance reports; hydropower monitoring reports and CSR policy; hydropower agreements (PDAs and PPAs) and MOUs; national policies relevant to hydropower; capacity building plans for Line/implementing agencies and RBOs.

Topic 2, Sub-topic 2. Siting and Design for Basin-wide Sustainable Development

This sub-topic covers the site selection process for hydropower, the application of multi-criteria analysis and optimisation studies, and risk assessments.

The performance statements for the four criteria

A. River basin planning – Siting and design is conducted within a basin wide planning framework informed by adequate baseline data and in consideration of multiple project optimisation and cumulative impacts. Systematic and ongoing monitoring is conducted to fill key knowledge gaps. Performance and change is measured against baselines.

B. Energy / power sector planning and regulation – Multi-criteria options assessment and optimisation studies for one or more projects address basin wide sustainability criteria for all projects (new and existing) in the basin. Studies are updated as more detailed information becomes available from feasibility and ESIA studies and monitoring programs. The sites and project configurations selected for development have avoided significant risks and addressed a number of sustainability criteria and technical risks at both the basin wide and project level.

C. Hydropower projects - Siting and design has used appropriate expertise and baseline data. It has addressed a number of technical risks and sustainability criteria. Siting and design mitigation measures have been implemented to address identified risks, their performance is monitored.

D. Regulatory and governance – Guidelines for hydropower siting, design and operational mitigation measures have been developed; compliance provisions are included in project level agreements and are enforced consistently across the basin.

Examples of evidence: options assessment studies; Integrated Water Resource Management (IWRM) plans; hydropower project pre-feasibility or feasibility studies; basin development plans; hydropower master plans national power development plans, strategic and cumulative impact assessment studies; national or regional development plans or policies,

Topic 3, Sub-topic 2: Transboundary economic analysis

This sub-topic covers the contributions of hydropower in a transboundary basin to both national and regional economic growth in the context of international agreements and economic development plans for the basin. It also covers any studies such as SEAs and transboundary economic analysis.

The performance statements for the four criteria

A. River basin planning – A transboundary basin development planning process and associated studies address the role of energy, hydropower and water resources development in national and regional economic growth. Economic and other data is contributed by each national government.

B. Energy / power sector planning and regulation – Transboundary economic analysis and SEA of hydropower development options on international rivers are conducted. The assessment of direct and indirect costs and benefits is conducted within a planning and consultation framework agreed by countries sharing the basin.

C. Hydropower projects – Projects on international rivers that proceed to development stage are accepted at a regional and national level in each country as being reasonable and equitable within the context of international agreements and economic development plans for the basin.

D. Regulatory and governance – A transboundary governance framework for regional cooperation on water and energy planning management exists. Progress towards basin and national economic development goals is regularly monitored and reported.

Examples of evidence: regional economic integration plans, basin development strategy, sub-regional energy/development plans; hydropower development plan, ASEAN Charter, project feasibility studies, multiple use/optimisation studies, options assessment studies, consultation documentation with other sectors.

Topic 4, Sub-topic 1. Transboundary benefit sharing

This sub-topic covers mutually agreed frameworks for countries sharing a river basin to consult on transboundary costs and benefit sharing options. This may include options for regional grid interconnections and joint ownership, as well as assessments carried out on transboundary risk and benefit sharing.

The performance statements for the four criteria

A. River basin planning – A transboundary basin development plan or strategy provides a mutually agreed framework for riparian states to consult on transboundary cost and benefit sharing options. The plan includes provisions for assessment of hydropower development on international rivers or projects with impacts and benefits in more than one country, taking into account cumulative impacts.

B. Energy / power sector planning and regulation – Options for regional grid interconnection and joint hydropower project ownership are assessed. Transboundary benefit sharing arrangements relating to hydropower agreed between riparian states are embedded in project level agreements.

C. Hydropower projects – Assessment of transboundary cost and benefit sharing options, and target beneficiaries, is conducted for projects with impacts and benefits in more than one country within the national regulatory framework.

D. Regulatory and governance – International obligations for risk and benefit sharing resulting from transboundary agreements are imbedded in national mechanisms and procedures and include monitoring and evaluation provisions.

Examples of evidence: project economic assessments, benefit sharing agreements, regulations and policies, monitoring and audit reports, transboundary benefit sharing agreements and regulations, PES policies or incentive schemes, PES agreements, Clean Development Mechanism (CDM) applications/guidelines, policies, Carbon finance agreements, revenue allocation agreements.

Topic 5, Sub-topic 2. Assessment and management of basin-wide social impacts

This sub-topic covers the necessary socio-economic studies and assessments, e.g. SIAs. It emphasises the need for proper baselines, disaggregated by gender and ethnic group and the identification of social risks associated with hydropower development, and the management of the impacts, through physical and economic resettlement and compensation and the appropriate allocation of resources.

The performance statements for the four criteria

A. River basin planning - Basin wide social baseline and regular monitoring is conducted and data is disaggregated. Basin wide cumulative assessment of water resource development scenarios is conducted and indicators are used to measure impacts in the basin. Trends in social well-being are monitored at the district and basin level and equitable improvement in social well-being in the basin can be demonstrated.

B. Energy / power sector planning and regulation – National and regional energy planning by government agencies have prioritised the selection of hydropower sites that avoid or minimise population displacement.

C. Hydropower projects – SIA studies and management plans are consultative, appropriately timed, publicly disclosed and informed by baseline data. They address social risks, including economic displacement in both the inundated and downstream areas and allocate of responsibility for implementation and monitoring. Plans to address social impacts, including resettlement plans are adequately funded and implemented in an equitable manner.

D. Regulatory and governance – Regulations and policies for hydropower SIA, resettlement action plans and livelihood restoration exist and are enforced. The suitability of land allocated by authorities for resettlement is assessed in consultation with resettlement communities. Funds, resources and institutional responsibilities are allocated to implement and evaluate resettlement activities and livelihood restoration in all project stages. Independent arbitration mechanisms exist to resolve disputes.

Examples of evidence: evidence of good faith negotiations, evidence of support Information provided to stakeholders – accuracy and quality of communication, watershed plans, and hydropower strategic communication.

Topic 6, Sub-topic 1. Assessment and management of basin-wide environmental impacts

This sub-topic covers the various levels of environmental impact assessment (SEA, EIA, CIA) carried out at different stages of development of a project and the environmental management and monitoring plans (EMMPs) developed to address the different impacts. For operational plants it would include ongoing monitoring and response to arising environmental issues.

The performance statements for the four criteria

A. River basin planning – Ongoing and systematic environmental baseline and regular monitoring is conducted in the basin to identify environmental changes and hotspots, and fill knowledge gaps associated with hydropower risks. Regular *State of the Basin* reporting identifies the environmental baseline condition, key pressures and trends in the basin. Environmental indicators are developed for hydropower and performance is measured.

B. Energy / power sector planning and regulation – Strategic and cumulative environmental assessments are conducted for power development plans and hydropower master plans. Project agreements include provision for the ongoing identification and management of cumulative environmental impacts during the project life and the need for co-ordination with other projects in the basin to manage current and future environmental impacts.

C. Hydropower projects – Hydropower projects apply a systematic approach to the identification, management and monitoring of environmental impacts at all project stages, using suitable expertise. Pre-project environmental baselines are established against which future change is measured. EIA's, environmental management plans and monitoring reports are publicly disclosed and implemented in a timely manner.

D. Regulatory and governance – A regulatory framework for hydropower environmental impact assessment, management and monitoring exists and is enforced in a timely manner. Cumulative and basin wide environmental impacts, beyond individual project sites are considered in the regulatory and planning processes for hydropower and the environmental performance of hydropower is measured at the basin scale.

Topic 7, Sub-topic 3: Co-ordinated hydropower operations

This sub-topic covers the coordination between multiple hydropower plants, e.g. in cascade in a river basin and with other uses to achieve better balance of flows and optimisation of operations. It also includes coordination of releases for dam safety.

The performance statements for the four criteria

A. River basin planning – There is allocation of responsibility and institutional arrangements in place for co-ordinated water management and power generation in the basin amongst multiple projects. Hydropower operations co-ordinate with other water users in the basin.

B. Energy / power sector planning and regulation – Co-ordination of the power system, including hydropower cascades, makes optimal use of hydropower capability (peaking, load following) and achieves balanced and equitable water use at the sub-basin level. Project level agreements include provision for co-ordination of operations amongst projects in a cascade or sub-basin and consistent design and operational mitigation measures.

C. Hydropower projects – Projects co-ordinate their operations to achieve basin objectives, efficient water use and optimise electricity generation. Design and operational environmental mitigation measures are consistent and co-ordinated between projects to optimise outcomes.

D. Regulatory and governance – A regulatory framework for hydropower includes provision for multiple projects in a cascade to co-ordinate at all project stages for optimal electricity generation, and efficient resource use. Transboundary mechanisms exist for co-ordination and co-operation for hydropower operations on international rivers

Topic 7, Sub-topic 4. Downstream and environmental flows

This sub-topic covers the management of downstream flow regimes below hydropower plants. It would include environmental flow assessments and compliance with agreements for releases to maintain ecosystem functions and services downstream.

The performance statements for the four criteria

A. River basin planning – Environmental flows assessment has been conducted for all river reaches affected or potentially affected by hydropower operations to establish criteria and thresholds for environmental and downstream flows. It includes assessment of wetlands and floodplains. It is consultative and informed by scientific baseline data.

B. Energy / power sector planning and regulation - Water management constraints on electricity dispatch are embedded in electricity dispatch and off-taker agreements. Compliance is monitored and publicly disclosed. Project agreements include design and operational performance criteria to deliver agreed environmental and downstream flows.

C. Hydropower projects – Projects conduct environmental and downstream flow assessments in feasibility stage to inform project design and operations. Project design and operation rules address commitments made for environmental flows and downstream water releases. Hydropower projects comply with environmental and downstream flow commitments.

D. Regulatory and governance – International agreements, national laws and basin plans relating to water allocation include provision for environmental flows. ESIA regulations and guidelines include provision for environmental flow assessment. Where commitments are made for environmental and downstream flows, their effectiveness is monitored at agreed sites.

Topic 7, Sub-topic 5. Flood and drought management

This sub-topic covers the management of water flows for flood and drought protection. It covers forecasting systems and capacities of the reservoirs to absorb flood waters, and for agreed releases downstream during droughts.

The performance statements for the four criteria

A. River basin planning - A basin flood and drought management plan includes flood monitoring and forecasting systems and planning for flood and drought response.

B. Energy / power sector planning and regulation – Project agreements and electricity dispatch arrangements include provision for design and operational flood and drought response measures. Agreements include provision for flood management to be prioritised over power generation in emergency situations.

C. Hydropower projects – Operating rules, project design, management plans include flood and drought mitigation measures that comply with statutory plans and are implemented. Response to flood and drought is co-ordinated amongst projects in a cascade.

D. Regulatory and governance – National and provincial governments have flood and drought plans and policies in place, including allocation of roles and responsibilities. Plans are implemented and

enforced and the response to drought and flood events is managed in a co-ordinated manner in the basin.

Examples of evidence: ESIA reports, project design and feasibility studies, operating rules and project agreements, flood and drought management plans, water allocation plans and policies, IWRM plans, multiple use studies, options assessment.

Topic 8, Sub-topic 2. Management of impacts and sediment resources

This sub-topic covers the management of the impacts of sediment and erosion, through improved watershed management to reduce the sediment reaching the reservoir, through various types of sediment passage through the reservoir and dam, e.g. sediment flushing and the measures to protect downstream river bed and banks from erosion.

The performance statements for the four criteria

A. River basin planning – Management plans exist and are implemented to address erosion impacts from land and water use activities and the in stream extraction of in river sand, gravel and cobbles. Regulations are enforced to ensure the sustainable extraction of in river sediment and mineral resources.

B. Energy / power sector planning and regulation - Guidelines and standards exist for the avoidance and mitigation of sediment trapping risks in hydropower reservoirs. They are enforced and applied to all new projects in the basin to manage technical and financial risks. Project agreements include design and operating requirements for sediment flushing where high potential for sediment trapping is identified.

C. Hydropower projects –Hydropower projects in the basin are sited, designed and operated to avoid and minimise trapping of sediment in reservoirs and downstream geomorphological impacts. Where sediment flushing will be required, reservoir bathymetry studies and a sediment flushing feasibility study and EIA is conducted to inform sediment flushing design and operating rules.

D. Regulatory and governance – Regulatory authorities monitor compliance against regulations and management plans and the effectiveness of management measures.

Examples of evidence – sediment baseline and monitoring reports; projects EIA's; feasibility studies; guidelines for sediment management; land use planning documents; IWRM plans; basin sediment budget; geomorphological mapping or river characterisation studies.

Topic 9, Sub-topic 2. Management of impacts and fisheries resources

This sub-topic covers the development of fishery management plans to address the impacts and develop the new fishery resources within the reservoir and downstream. It could include specific measures to manage the reservoir ecosystem and protection of habitats upstream of the reservoir, as well as aquaculture development and technical assistance to fishermen for developing the reservoir fishery.

The performance statements for the four criteria

A. River basin planning – A basin wide fisheries management framework exists and includes measures to promote fisheries productivity and regulate fishing activity. The effectiveness of management measures is monitored. Where reservoir fisheries are established a framework exists for their management, monitoring and sustainable harvest.

C. Hydropower projects –Where feasible, siting and design measures and operational procedures are implemented to avoid and minimise fishery impacts. The effectiveness of mitigation measures is measured against baseline data and publicly disclosed. Compensatory and off-set measures are deployed in the sub-basin to address losses in fishery productivity or biodiversity as a result of hydropower.

D. Regulatory and governance – Fishery plans regulations, catch limits, restricted fishing zones and other measures are enforced to protect fishery resources. EIA laws and regulations require fisheries impacts to be addressed and requirements for mitigation are included in hydropower project agreements. The effectiveness of fishery management and mitigation approaches and hydropower compliance with regulations is monitored by regulatory authorities.

Examples of evidence; national fisheries policies and regulations, Basin fisheries policies and plans, EIA regulations for fish, Ecological and habitat assessments, Project EIA studies, Project feasibility studies, Optimisation studies, Hydropower design reports, Hydropower operational procedures and plans, Photographic evidence of dam structures, Project feasibility and optimisation studies, Fish conservation management plans, Environmental (and construction) management plans.

Topic 10, Sub-topic 2. Community safety and emergency response

This sub-topic covers the preparation, awareness and training of community safety plans and emergency responses. It also covers preparedness for changes in downstream flows during regular operations, e.g. during peaking. It covers warning systems and notifications issued by the company for downstream communities and river users.

The performance statements for the four criteria

A. River basin planning – Integrated planning for emergency response, including sudden water release, flood, and other disasters exists amongst stakeholders in the river basin. Notification, warning and evacuation systems exist, are tested and are used in a timely manner. Flood risk analysis exists for the basin and includes hydropower assets and operational requirements.

B. Energy / power sector planning and regulation – Policies and standards exist for public safety issues associated with hydropower.

C. Hydropower projects – Hydropower procedures for water releases include provision for notification and warning systems, emergency response plans and the avoidance, mitigation and compensation for harm to life and property. There have been no major hydropower related community safety incidents in the basin.

D. Regulatory and governance – Regulations for emergency response plans and community safety plans for hydropower projects exist and are enforced. Government plans for emergency response including flood and disaster response exist and are tested. Laws and regulations include provision for compensation for damage to life and property and are enforced. Emergency response plans are regularly tested with provincial and local police and emergency crews.

Examples of evidence - Dam Safety Management System documentation; dam safety risk assessment reports independent auditing and monitoring reports; integrated dam safety risk assessment reports; emergency Preparation Plan (EPP); integrated EPP for the basin, training programs, community awareness programs dam break analysis reports for projects in a cascade; national and regional emergency flood management plans and policies.



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