

GEF IW:LEARN Regional Workshop  
*Foz do Iguaçu, Brasil*  
11-15 February 2008

# Application of Environmental Flows in River Basin Management



*The Itaipú Dam and the Paraná River, on the border of Brasil and Paraguay*

Photo Credit: André Pol

## ***Workshop Report***

**Edited by: Mark Smith, IUCN**



## Table of Contents

Acknowledgements .....	3
1. Description of Workshop .....	4
1.1 <i>Background</i> .....	4
1.2 <i>Workshop goals</i> .....	4
1.3 <i>Workshop design</i> .....	4
1.4 <i>Workshop agenda and sessions</i> .....	5
2. Participants .....	6
2.1 <i>Host institution and organising partners</i> .....	6
2.2 <i>Participants</i> .....	6
2.3 <i>Resource team</i> .....	6
3. Environmental Flows Network.....	6
4. FAP Results .....	7
5. Plans for Workshop Follow-Up .....	7
6. Evaluation results .....	8
6.1 <i>Rating method</i> .....	8
6.2 <i>Evaluation results</i> .....	9
6.3 <i>Participants' feedback</i> .....	10
7. Conclusions.....	10
7.1 <i>Learning achieved</i> .....	10
7.2 <i>Lessons learned</i> .....	11
Annex 1 – Workshop Programme .....	12
Annex 2 - The 'Rio Takong' Scenario, Sessions 11-14 .....	17
Annex 3 - Topic Checklists.....	37
Annex 4 - Final List of Participants .....	39
Annex 5 - Framework Action Plan.....	45
Annex 6 - Summary of Participants' Framework Action Plans.....	47
Annex 7 - Workshop Evaluation Form.....	50
Annex 8 - Responses to the Workshop Evaluation .....	51
Annex 9 - Newsletter Story.....	52

## **Acknowledgements**

IUCN and GEF IW:LEARN are grateful for the enthusiastic collaboration and professionalism of the partnership that came together to make this workshop possible. Itaipú Binacional and Parque Tecnológico Itaipú (PTI) were exemplary hosts and we also thank them for the excellent facilities they made available for the workshop and for their generous financial support, which was instrumental in ensuring that all participants had an enjoyable and productive stay in Iguazu. We especially thank Dr Nelton Friedrich, Zoltir Chiapetti, Jair Kotz and Marcelo Alves de Sousa for their commitment to making the workshop a success. We wish also to thank the resource team of Prof. Marcelo Gaviño Novillo, Glauco de Freitas, Rocío Córdoba and Dr Alejandro Iza who very ably supported the workshop.

# **1. Description of Workshop**

## **1.1 Background**

Through the Water and Nature Initiative (WANI), IUCN has engaged in a three-year partnership with GEF IW:LEARN, which aims to strengthen Integrated Water Resources Management (IWRM) by facilitating structured learning and information sharing among stakeholders in transboundary water resources.

IUCN-WANI is the Project Activity Leader for learning relating to the freshwater – particularly river basin – subset of the GEF International Waters portfolio, under IW:LEARN Activity B2.1.2. The IW:LEARN programme is jointly overseen by UNDP, UNEP and the World Bank/World Bank Institute.

This workshop was organised in response to a needs assessment conducted with the GEF constituency prior to and during the GEF International Waters Conference in Brazil in June 2005 and after consultations with stakeholders during the 2007 conference in Cape Town. High demand was expressed during both consultations for better understanding of the concept of environmental flows and for better knowledge of the processes and tools needed to support implementation. Focussing the workshop on the Latin America / Caribbean region was timely because of the intensity of hydropower development in the region and the high priority given to management of dams and flow allocation in project plans, TDAs and SAPs for GEF IW projects in the region. Awareness has thus been growing in the region of the potential for application of environmental flows to make management of transboundary waters more effective. The workshop was therefore designed to support increased shared understanding of the conceptual and practical basis for environmental flows, focussing particularly on key issues related to integrating social, economic and environmental goals into decision making over dams and water allocation.

## **1.2 Workshop goals**

The goal of the workshop was to build understanding of environmental flows and capacity for design and co-ordination of programmes for assessment and implementation of environmental flows in river basins in the Latin America/Caribbean region. The workshop aimed to support participants in developing action plans for application of environmental flows by:

1. improving their understanding of the links between flow regimes in rivers and economic, social and ecological impacts, and thus of what is an environmental flow;
2. introducing methods for assessing flow scenarios and then physically managing flows;
3. reviewing requirements for implementing environmental flows, especially governance, economic justification and incentives, and promotion of change;
4. supporting synthesis of components into practical designs for application of environmental flows in river basin management.

The intent was to enable participants to return to their basins/institutions with a vision for how environmental flows can be applied and a plan for mobilising action.

## **1.3 Workshop design**

The workshop was structured to deliver 6 learning objectives for participants. These were:

1. Understanding the principles of environmental flows;
2. Familiarisation with methods for flow assessment and options for managing infrastructure;

3. Understanding of how to define flow scenarios and negotiate flow regimes with stakeholders;
4. Development of an implementation framework for environmental flows, encompassing governance and economic requirements;
5. Creation of roadmaps for fostering cooperation and social learning, generating political momentum and managing change;
6. Formulation of action plans for application of environmental flows in management plans for project basins

On the basis of these goals, the programme for the workshop was developed as a combination of presentation of a conceptual foundation for environmental flows, discussion of case stories, a role playing exercise integrating key concepts and consideration of practical implementation, and personal reflection.

The mechanism for personal reflection was for each participant to develop a 'Framework Action Plan' (FAP). The FAP was a simplified version of the 'Personal Action Plans' piloted at the IW:LEARN Regional Workshop on Economic Valuation and Water-Related Decision Making (Ouagadougou, November 2006). The FAP was structured to encourage participants to think further about:

- both project/institutional goals for flow management and personal goals for learning
- project/institutional and personal priority actions
- resource needs
- follow-up planning

Short periods for participants to work on their FAPs were integrated into the workshop programme at the end of relevant sessions. This ensured that on each day of the workshop, participants reflected personally on steps needed to apply what they were learning to real-world problems they are facing in their own river basins and institutions.

#### **1.4 Workshop agenda and sessions**

The workshop was held over 5 days, from February 11-15 2008. The workshop programme is given in Annex 1.

Sessions 11-14, covering policy and legal frameworks and multi-stakeholder negotiation of governance reform, were devoted to a role-playing exercise. This was based on a scenario for the 'Rio Takong', a fictitious transboundary river basin where integrated water resources management is constrained by misalignment of policies and law in different parts of the basin, competing uses for water and interest groups, and ineffective institutions. The basin is faced with accelerating demand for water upstream, for industry, agriculture and hydropower, that threatens the viability of downstream ecosystems, indigenous livelihoods, river navigation and tourism development. Participants were split into working groups and tasked with presenting proposals for resolution of water-related disputes in the basin to 'The Chamber' of the 'World Commission on Rivers', which was asked to make recommendations on an enabling processes for development of basin management agreements. Each group was assigned to represent a different political jurisdiction and its associated interest groups, or to a coalition of indigenous and environmental NGOs. Groups were asked to resolve as many disputes as possible prior to a hearing of 'The Chamber', which concluded the exercise. This set up a process of transboundary and multi-stakeholder negotiations on water allocation and sharing of benefits in the basin. The full documentation for the exercise is in Annex 2.

The design of the workshop additionally incorporated a mechanism for building up summaries of the key points for each topic area. This was done by creating a set of checklists which were developed and reviewed by participants as a means of closing work

on different topics. These were posted on the walls, creating a real-time record of progress in the workshop, which was then reviewed in the closing session. The checklists, given in Annex 3, covered:

- Checklist 1: Understanding flow requirements & setting up environmental flow assessments
- Checklist 2: Setting objectives / working with scenarios
- Checklist 3: Modifying management infrastructure
- Checklist 4: Understanding costs and benefits / covering the costs
- Checklist 5: Elements of reform processes – policy, legal and institutional

## **2. Participants**

### ***2.1 Host institution and organising partners***

The workshop was hosted by Itaipú Binacional, the operating company for the Itaipú dam, and the Parque Tecnológico Itaipú (PTI), the centre for training and business incubation at Itaipú. Both organisations supported the staging of the workshop, through funding, logistical support and provision of facilities, working in close partnership with:

- IUCN
- GEF IW:LEARN
- The Nature Conservancy

### ***2.2 Participants***

The list of participants in the workshop is given in Annex 4. There were 23 participants from 13 countries in the region. This included representation from Caribbean islands, Central America, Andean countries and the Plata and Amazon basins.

### ***2.3 Resource team***

The workshop was delivered by a resource team with six members:

- Rocío Córdoba, Water Management Coordinator, IUCN Meso-America
- Glauco de Freitas, Great Rivers Partnership Coordinator, TNC Brazil
- Prof Marcelo Gaviño Novillo, Professor of IWRM, University of Buenos Aires
- Dr Alejandro Iza, Head, IUCN Law Programme
- Janot Mendler de Suarez, Deputy Director, GEF IW:LEARN
- Dr Mark Smith, Water Management Advisor, IUCN Water Programme

## **3. Environmental Flows Network**

The Environmental Flows Network ([www.eflownet.org](http://www.eflownet.org)) has been launched in the last year as a means of connecting environmental flows practitioners and experts, of sharing information and learning resources and of facilitating peer-to-peer problem solving. To promote use of the network by participants in the workshop, web pages for the workshop were posted on the network website. These made workshop information and reading materials available to participants.

Each participant was enrolled in the network and sent membership information and logins. Powerpoint presentations from the workshop and additional reports and literature provided by participants have been posted on the website to promote further use of the network (<http://www.eflownet.org/viewinfo.cfm?linkid=74&linkcategoryid=6>).

## 4. FAP Results

Framework Action Plans were completed and submitted by 20 of the 23 participants. An example of a completed FAP form is in Annex 5. A detailed compilation of professional and personal goals and priority actions identified by participants during the workshop using the FAP format is given in Annex 6. These were grouped into categories and are summarised on Table 1. The FAP results indicate there was highest interest in outreach, stakeholder engagement, knowledge building and provision of training. There was also substantial interest in developing pilot projects and influencing policy.

**Table 1: Summary of participants' goals and priority actions for further learning and application of environmental flows.**

Category	% of FAP entries
Dissemination and outreach, information sharing, workshops, stakeholder engagement and coordination	36
Information gathering, knowledge building, staff training and research	26
Pilot projects, local applications and documentation in project planning	16
Steering of policies, decision making and regulation, lobbying and partnership building	14
Fundraising and capacity building	6
Methodological development and application of technical tools, such as databases, scenario analysis, biological surveys	3

## 5. Plans for Workshop Follow-Up

Reflections by participants triggered by the Framework Action Plans and interaction throughout the week generated numerous ideas and plans for follow-up activities. These included:

- plans for a workshop on legal reform needed in Brazil to accommodate environmental flows;
- a presentation to the Board of the Uruguay River Commission on opportunities to incorporate environmental flows in the Commission's programme;
- planning for environmental flows assessment in GEF-IWCAM demonstration projects;
- fundraising for an environmental flows training workshop in the Artinobite basin for Caribbean projects;
- stakeholder coordination meetings on how to integrate environmental flows into river basin management in Panama, backed by a training programme;
- fundraising and development of a multi-institutional partnership between government and civil society organisations to implement an environmental flows partnership in Brazil;

An overall summary of participants' plans for workshop follow up are given in Table 2.

**Table 2: Summary of participants' plans for workshop follow up.**

<i>One example of how I would like to apply what I have learned to my project or work is...</i>	<b>No. of responses</b>
Sharing learning and experience from the workshop with colleagues, for example through presentations or by initiating dialogue.	4
Organising local and regional-level workshops with water and environment decision makers	3
Developing processes for training of trainers	2
Assessing environmental flow requirements for ongoing projects	2
Ensuring that environmental flows is addressed in discussion on sustainable hydropower.	1
Conducting further research on environmental flows applications in watershed management.	1
Organising workshops with water users and stakeholders	1
Meeting regularly with national water agencies and promoting changes in regulations to support application of environmental flows	1
Integrating environmental flows into the planning and monitoring of specific projects in Panama.	1

Interaction among participants led to discovery of common interests extending beyond environmental flows. This included application of micro-watershed planning in community development, an approach used by Itaipú Binacional with communities around the Itaipú reservoir under the 'Cultivating Good Water' programme. Discussions led to expression of interest in learning exchanges on the topic between Brazil, Panama and Guatemala, as well as discussion of a possible future partnership between Itaipú Binacional and GEF-IW:LEARN on support for application of the approach in African basins where Portuguese is spoken.

## **6. Evaluation results**

### **6.1 Rating method**

In the final session of the workshop, participants were asked to rate the workshop in ten different areas by expressing their opinions on evaluative statements, using the evaluation form given in Annex 7. The four alternative responses were:

- Strongly Disagree (**SD**)
- Disagree (**D**)
- Agree (**A**)
- Strongly Agree (**SA**)

The ten statements were:

#### 1 General logistical organisation

- 1.1 Overall, the workshop was well organised.
- 1.2 The venue facilities were suitable.
- 1.3 Overall, the organisation facilitated learning.

#### 2 General technical issues

- 2.1 The reading/preparation materials helped me to get more out of the workshop.
- 2.2 The content of the workshop matched the objectives of the workshop well.
- 2.3 The workshop enabled an exchange of experience and information on environmental flows.
- 2.4 Sufficient time was allocated for discussion.
- 2.5 The exercises facilitated my learning.
- 2.6 I am now more aware of sources of expertise and information on environmental flows.



- 2.7 My knowledge of environmental flows and how it is relevant in my work has improved.
- 2.8 I have acquired a significant amount of information that is new to me.
- 2.9 I feel able to use what I have learned back home.
- 2.10 Overall, the workshop was very useful.

Participants were additionally asked to provide short written answers to complete four statements:

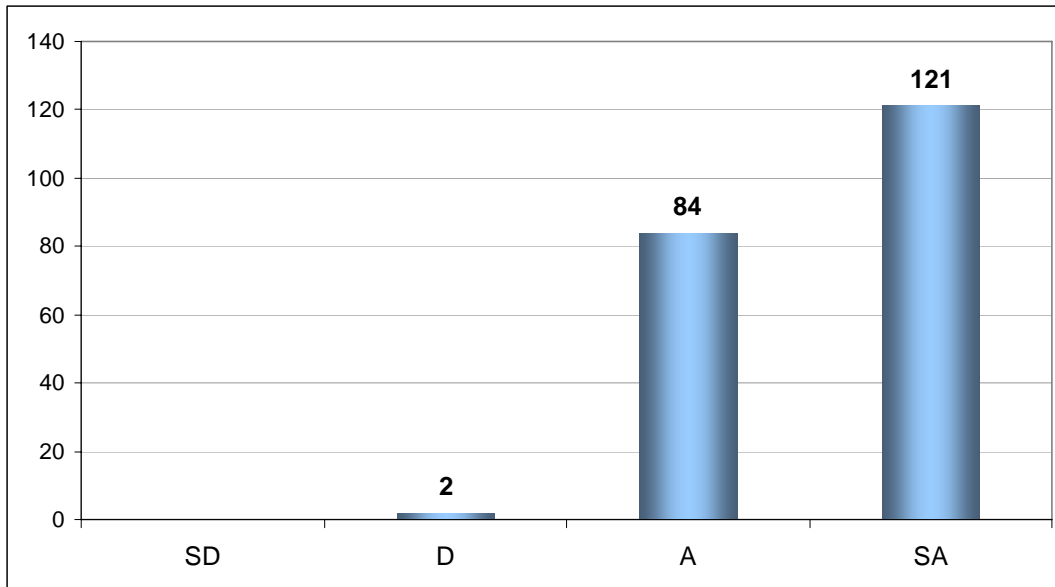
1. What I liked least about this workshop was...
2. The workshop delivery or organisation could be improved by...
3. What I liked most about this workshop was...
4. One example of how I would like to apply what I have learned in my project or work is...

### 6.2 Evaluation results

Overall the responses of the 16 participants who returned their evaluation forms were predominately positive. Results for each question are given in Annex 8.

In overview, of the 260 responses, 205 or 99% were positive, as shown in the Figure 1 and Table 3 below.

**Figure 1: Aggregate responses to the thirteen workshop evaluation questions (see Section 6.1 for explanation).**



**Table3: Summary of ratings given by participants to the evaluative statements in Section 6.1**

	Rating			
	SD	D	A	SA
No. of responses	0	2	84	121
% of responses	0%	1%	41%	58%

### 6.3 Participants' feedback

A number of participants provided written comments on their workshop evaluation forms. These were grouped into categories and tabulated. Table 4 gives responses to the questions of what was liked least about the workshop and how delivery and organisation of the workshop can be improved. Table 5 summarises responses to question of what was liked most about the workshop.

**Table 4: Participants' comments on what was liked least about the workshop and suggestions for improving delivery and organisation.**

<i>What I liked least about the workshop was...</i>	<b>No. of responses</b>
There was not enough time to get into the details and/or the range of subjects covered was too broad.	3
The sessions were too intense (especially in the afternoons), leaving little time to work and think on one's own.	3
There were not sufficient links made between methodologies and applications in practice.	2
Time for the negotiation exercise was too limited.	1
<i>The workshop delivery or organisation can be improved by...</i>	
Modifying the schedule, for example by placing the negotiation exercise first or reducing the number of sessions per day to allow more discussion.	5
Ensuring all materials and working documents are available in Spanish.	2
Using more diverse examples for each topic.	2
Making linking of background materials to sessions better.	2
Organising a field visit to a project using environmental flow assessment methodologies.	1
Incorporating some constraints into the negotiation exercise to make it more plausible.	1

**Table 5: Participants' comments on what was liked most about the workshop.**

<i>What I liked most about the workshop was...</i>	<b>No. of responses</b>
The opportunity to share experience and network with participants.	5
The focus on concrete examples through practical exercises, such as the negotiation exercise and the field visit.	5
Strengthening of learning by combining both theory and practical applications.	3
The professional consistency and high quality of the group.	3
The diversity of methods explored and the way they were presented.	2
The opportunity to make new contacts and find new resources, including new organisations.	2

## 7. Conclusions

### 7.1 Learning achieved

Environmental flows is an outwardly simple concept – managing flow to meet the needs of both people and nature – but in reality requires integration of knowledge across numerous disciplines as disparate as law, economics and ecology. The choice to devote a week to the workshop meant that it was possible to move beyond superficial coverage of the concept to consider the multi-faceted nature of environmental flows in some depth. As a result, the workshop programme was very intense. However, it succeeded in generating rich learning opportunities because of the notable commitment of the participants.

It was clear at the start of the workshop that participants held various conceptions of what environmental flows are all about. Through interactive discussion, the group arrived at a common understanding that environmental flows is not, for example, a simple minimum flow for a river, but is instead a means of integrating multiple needs into allocation and flow decisions for rivers, and is thus an important tool for sustainable development. With this as a base for learning as the week progressed, participants were able to relate the various topics

covered back to the question of why flows management is desirable and the tools needed to do it successfully.

The results of the workshop evaluation provide assurance that participants left the workshop better informed about environmental flows as a theory and as a practice. Participants expressed considerable enthusiasm for continuing to learn about environmental flows and for finding opportunities to integrate environmental flows into their work programmes. This was the result, not only of the new knowledge gained, but of the new networks formed through interactions and experience sharing made possible by the workshop.

A newsletter story capturing some of the spirit and dynamics of the workshop is in Annex 9.

## **7.2 Lessons learned**

Though the workshop was well received by the participants, there are still some key lessons to be learned. These include the following:

- The use of personal action planning as a mechanism to trigger reflection by participants during the course of the workshop was piloted during the workshop on ecosystem valuation in Ouagadougou in November 2006. In this workshop, the FAP format was a simpler version of the structure used in Ouagadougou, with less input requested and guiding questions that were less specific. Overall, the simpler approach worked better, as participants were less distracted by seeking clarification on what was required and more readily took a few minutes to organise thoughts and plans.
- The programme was very intense, and was tiring for participants, leaving insufficient time to absorb and analyse the information presented. In this instance, however, the workshop succeeded because of the high level of commitment of participants. With a less industrious or committed group, the event might have been less successful. Thus, while the intensity of the programme reflects the need to cover the many contributing disciplines of environmental flows, if delivering the workshop again, there would be a need to adjust the schedule to open more time for analysis and debate.
- The workshop programme was made more intense by slippage in the schedule caused by enthusiastic discussion by participants. Time for discussion was intentionally built into planning of sessions, yet still this was not enough. A key lesson (all over again) is to reserve more time for discussion.
- The negotiation exercise around which the final two days of the event was structured was popular and successful. The group was able to incorporate many of the issues raised in the preceding sessions in their situational analyses of the 'Rio Takong' scenario, in the negotiation processes and in the submissions made at the end of the exercise. On reflection, if running the workshop again, there may be an advantage to inverting the programme and running the negotiation exercise early in the programme, immediately after the conceptual introduction to environmental flows. It would then be possible to revisit the negotiations throughout the week as new concepts were introduced, enabling groups to refine their positions and conclusions. This would encourage more practice-based learning and possibly create a mechanism for increasing the time available to analyse and discuss the material, as participants requested.

## Annex 1

### GEF IW:LEARN Regional Workshop on Application of Environmental Flows in River Basin Management

### Taller Regional del GEF IW:LEARN sobre Aplicación de Caudales Ambientales en el Manejo de Cuenca Fluviales

February 11-15, Foz do Iguaçu, Brasil



## PROGRAMME

### DAY 1 – Monday February 11

#### **SESSION 1**

##### **Session Title: Welcome & Introduction**

*Time:* Monday February 11 09.15-11.00

*Chair:* Janot Mendler de Suarez, GEF IW:LEARN

- 1.1 Opening ceremony (30 mins)
- 1.2 Introduction of participants
- 1.3 **Presentation:** Workshop overview and goals (15 mins)  
Speaker: Mark Smith
- 1.4 **Presentation:** Introduction to Itaipu dam and the Plata basin: Cultivating Good Water (40 mins)  
Speaker: Dr Nelton Friedrich, Itaipu Binacional
- 1.5 Questions

#### **SESSION 2**

##### **Session Title: Principles of environmental flows**

*Time:* Monday February 11, 11.15-13.00

*Chair:* Mark Smith

- 2.1 **Presentation:** Principles of environmental flows (40 mins)  
Speaker: Prof. Marcelo Gavino Novillo, University of Buenos Aires, La Plata
- 2.2 Discussion: questions and exchange of experiences from other basins, including upstream and downstream perspectives

#### **SESSION 3**

##### **Session Title: Goals for flow management**

*Time:* Monday February 11, 14.00-15.45

*Chair:* Mark Smith

- 3.1 **Presentation:** Introduction to session (10 mins)  
Speaker: Mario Aguirre, IUCN
- 3.2 Breakout exercise on goals for flow management: social, economic, ecological, hydrological goals for environmental flows from the perspectives of different stakeholder groups
- 3.3 Discussion: report back to plenary
  - facilitation highlights framework for workshop: flow assessment, managing the dam, economics, policy and law, equity and empowerment, social learning and change management. Review plan for rest of workshop.
- 3.4 Introduction to Framework Action Plan

**SESSION 4****Session Title: Introduction to Methods of Environmental Flow Assessment**

*Time:* Monday February 11, 16.15-18.00

*Chair:* Mario Aguirre

4.1 **Presentation:** Overview of methods of flow assessment (30 mins)

Speaker: Glauco de Freitas, TNC Brazil

4.2 Discussion & questions

**DAY 2 – Tuesday February 12****SESSION 5****Session Title: Case Studies of Environmental Flow Assessment**

*Time:* Tuesday February 12, 09.15-11.00

*Chair:* Jorge Rucks

5.1 **Presentations:** Case study examples (15 mins each)

1. Honduras – presented by Glauco de Freitas
2. Costa Rica – presented by Marcelo Gavino Novillo
3. Pangani Basin, Tanzania – presented by Mark Smith
4. Potential for Environmental Flows in Brazilian River Systems - presented by Joaquim Gondim, ANA (tbc)

5.2 Discussion

- questions
- lessons-learned
- how to ensure results can be used by decision makers

**SESSION 6****Session Title: Design of Environmental Flow Assessments**

*Time:* Tuesday February 12, 11.15-13.00

*Chair:* Mark Smith

6.1 Introduction and output of session (Marcelo Gavino Novillo & Glauco de Freitas)

6.2 Group exercise: assessment programme design. Identification of data needs for hydrology, ecology, social and economic components

6.3 Discussion

- groups report back to plenary
- consolidate recommendations

6.4 Checklist

**SESSION 7****Session Title: Setting Flow Objectives and Using Scenarios**

*Time:* Tuesday February 12, 14.00-15.45

*Chair:* Mark Smith

7.1 **Presentation:** Setting flow objectives using flow scenarios (30 mins)

Speaker: Marcelo Gavino Novillo

7.2 **Presentation:** Scenarios for the Plata River – Insights from the Plata TDA (20 mins)

Speaker: Jorge Rucks, OAS

7.3 Dialogue on scenarios for the Plata & discussion

- what are possible scenarios for flow management in the Plata?
- scenarios and lessons from other basins
- identifying and managing trade-offs among priorities

7.4 Checklist

**SESSION 8****Session Title: Management Options for Infrastructure**

*Time:* Tuesday February 12, 16.15-18.00

*Chair:* Glauco de Freitas

8.1 **Presentation:** Options for managing water infrastructure (30 mins)

Speaker: [Itaipu Binacional, TBC]

8.2 **Presentation:** Regulation of flow for the Rio Uruguay Plata system (30 mins)

Speaker: Ing. Alejandro Arcelus, CARU

8.3 Discussion

8.4 Checklist

**DAY 3 – Wednesday February 13*****Technical Visit:***

*Morning:* Biological Refuge, Piracema Park

*Lunch:* Itaipu Technology Park

*Afternoon:* Visit to the Itaipu Dam and Hydropower Plant

## **DAY 4 – Thursday February 14**

### **SESSION 9**

#### **Session Title: Enabling Conditions for Implementing Environmental Flows**

*Time:* Thursday February 14, 09.15-11.00

*Chair:* Jorge Rucks

9.1 **Presentation:** Enabling Environment for Environmental Flows (10 mins)

Speaker: Mark Smith

9.2 **Presentation:** Valuation of ecosystems – principles

Speaker: Robert Crowley, GEF-UNDP

9.3 **Presentation:** Incentives for environmental flows

Speaker: Mark Smith

9.4 Discussion

9.5 Checklist

### **SESSION 10**

#### **Session Title: Policy & Legal Frameworks**

*Time:* Thursday February 14, 11.15-13.00

*Chair:* Mark Smith

10.1 **Presentation:** Enabling policy and law for environmental flows (30 mins)

Speaker: Dr Alejandro Iza, IUCN Environmental Law Centre

10.2 **Presentation:** Water policy and law in Brazil: implications for environmental flows implementation (30 mins)

Speaker: Luciano Meneses Cardoso da Silva, ANA

10.4 Discussion

### **SESSION 11**

#### **Session Title: Reform of Governance & Multi-Stakeholder Platforms**

*Time:* Thursday February 14, 14.00-15.45

*Chair:* Alejandro Iza & Rocio Cordoba

11.1 Introduction to group exercise and roles for participants (Alejandro Iza and Rocio Cordoba)

11.2 Group exercise: enabling implementation of environmental flows

**SESSION 12**

**Session Title: Reform of Governance & Multi-Stakeholder Platforms**

*Time:* Thursday February 14, 16.15-18.00

*Chair:* Alejandro Iza & Rocio Cordoba

Exercise Continued

**DAY 5 – Friday February 15**

**SESSION 13**

**Session Title: Reform of Governance & Multi-Stakeholder Platforms**

*Time:* Friday February 15, 09.15-11.00

*Chair:* Alejandro Iza & Rocio Cordoba

Exercise continued

**SESSION 14**

**Session Title: Reform of Governance & Multi-Stakeholder Platforms**

*Time:* Friday February 15, 11.15-13.00

*Chair:* Alejandro Iza & Rocio Cordoba

Exercise Continued

Discussion and feedback

**SESSION 15**

**Session Title: Synthesis**

*Time:* Friday February 15, 14.00-15-45

*Chair:* Mark Smith

- 15.1 Synthesis of components and checklists
- 15.2 Framework action plans by participants
- 15.3 Consultations with resource team

**SESSION 16**

**Session Title: Closing**

*Time:* Friday February 15, 16.15-18.00

*Chair:* Janot Mendler de Suarez

- 16.1 Review of goals and expectations
- 16.2 Follow-up actions
- 16.3 Evaluation
- 16.4 Closing ceremony



## Annex 2

### The 'Rio Takong' Scenario for the Role Playing Exercise, Sessions 11-14

---

#### APPLICATION OF ENVIRONMENTAL FLOWS IN RIVER MANAGEMENT

##### The Takong River case

##### Learning Objectives

The general objective of this exercise is to promote the understanding of the political, legal and governance issues relating to the provision of environmental flows (within one country, as well as in a transboundary context).

Through a practical case, and a role-play exercise, the participants will be able to:

- Understand the power games that are present within a river basin and this affects the establishment of effective and sustainable solutions
- Understand the challenges for creating an enabling policy for the provision of environmental flows with a basin wide context
- The need to establish multi-stakeholders platforms
- The incentives for building political engagement

##### Background Information

The Takong River basin covers an area of approximately 600.000 Km<sup>2</sup> and is shared between two countries: Konfundistán and Akinostán. The biggest part of the basin is located in Konfundistán, which is the upstream country.

The Takong River originates in Konfundistán, on the slopes of Mount Pingimanjaro and receives water from the melting of glaciers, located on the top of the Volcano.

Mount Pingimanjaro is a protected area, a water reservoir, has abundant biodiversity, and dense forests. Due to climate change, the glaciers of Mount Pingimanjaro are in recession; the protected area was established to maintain the water flow of the river.

The river course is north-south and has an extension of approximately 2.800 km from its origin to its mouth in the South Sea.

The Takong River has a tributary, the Sambara River, located entirely within the territory of the Kingdom of Konfundistán.

The Takong River ends in a delta of considerable breadth. Within this area, the capital cities of both Kingdoms are located (Cartago and Palmyra).

Approximately 100 km upstream from the delta, an enormous expanse of wetlands maintains part of the flow towards the end of the river, serves as nesting and breeding grounds for migratory birds and, above all, is the breeding site of an endemic species: the Giant Black Salmon, an economic source for part of the Akinostán population. The Marshes have been registered in the Ramsar list by both countries, declared a Transboundary World Heritage site, and are also part of the range of the Agreement to protect the Golden Dodo, a rare migratory bird species (which is the flag of the Akinostán Kingdom). Due to its magnificent beauty, the area has been attracting more and more tourists not only from Konfundistán and Akinostán but also from overseas.

The Takong Delta, the origin of the ancient civilization of the Sumeristanis, contains a series of archaeological sites, particularly on the side of Akinostán. All these sites are World Heritage monuments. In addition, the coast provides several attractions for international tourism.

Offshore from the Delta is the Tilapia Archipelago. The group of 3 islands is inhabited by the Tilapi, an indigenous group which lives from fishing (and export) of the giant black salmon and the garnering of mussels. However, in recent year the Tilapi have discovered another source of income: tourism. As a result of that, they started to develop beach resorts on the islands, which are visited by the international tourists coming to see the Takong Delta and the Archipelago.

## **Country Information**

### **Konfundistán**

The Kingdom of Konfundistán is a constitutional monarchy. The National Constitution of 1947 organised the country as a federation, in which the states have a great level of autonomy, including the administration of their natural resources.

Konfundistán has 3 federated states, all of them located along the Takong River.

Pangara, the richest of the 3, is upstream. It has an economy based on extractive industries, mining, and textiles. Mount Pingimanjaro Park is located within the State of Pangara.

Further downstream is the State of Sambara. With a population of approximately 2 million, the State of Sambara is the main agricultural producer of the Kingdom. The Sambara River, a tributary of the Takong, is located 90% within the territory of the State of Sambara (only 10% is in the State of Pangara). Sambara City, with a population of approximately 1 million, is the capital city of the Federated State, and famous for the annual international fair of agricultural products and new varieties of plants.

Tamara, further downstream, is the most populated State of the Kingdom. It has 4 major cities, including the capital, Cartago, where approximately 2 million people live.

The entire population of Tamara is about 6 million, and increasing. Although this state used to be the economic motor of the Kingdom, due to the exhaustion of the oil and gas reserves and soil erosion, most of the industries moved to the north (especially to the State of Pangara). There is some agricultural land in the north of Tamara, but it is not competitive due to the exhaustion of the soils and the decreasing levels of water.

The Kingdom of Konfundistán is a member of the United Nations, and Party to most of the global environmental agreements<sup>1</sup>.

Konfundistán is also a member of a regional integration organisation: the MERCOSTÁN. This organisation, conceived 50 years ago for the liberalization of trade between its member countries, has proven in recent years to be a suitable forum to advance inter-state cooperation in other areas of common concern for the member countries. For instance, the Takong River Treaty between Konfundistán and Akinostán was signed under the auspices of the MERCOSTÁN to regulate border issues, navigation, and water quality standards. Although the treaty created a Basin Authority (the Takong River Commission), this institutional set up suffered from lack of political and financial support from both sides.

Five years ago, as a result of a multinational multi-year programme to preserve the Black Salmon Marshes, the Takong River Commission has seen a slight re-start. The implementing and support agency is the Natural World Union, a federation of environmental organisations. The Natural World Union has national committees in both countries: Konfundistán and Akinostán.

The National Constitution of 1947 recognised the right of all Konfundistanis to a clean environment, suitable for the development of life in all forms. It also allowed for public participation in decision-making through civil society groups, NGOs, academia, and the right of indigenous peoples to decide over their resources.

Konfundistán being a strongly decentralised federation, the Federated States (Pangara, Sambara, and Tamara) have regulated the natural resources located within their respective territories, and the Federal Government in Cartago can only establish minimum standards and harmonise those adopted by the States. Aside from that, the Federal Government deals with the resolution of inter-jurisdictional and transboundary conflicts and disputes over the natural resources of the Kingdom.

Konfundistán lacks modern water legislation at the country level. There are some provisions relating to water quality and utilization in the Land Law of 1961, and the Forest Law of 1962. A reform process has been ongoing for many years. The reason why it has proven to be so difficult to adopt a new Water Law relates to the level of decentralisation of the country, and the fact that the Federated States see the adoption of water legislation as a State (Federated State) issue.

---

<sup>1</sup> Convention on Biological Diversity, Convention of Wetlands of International Importance (Ramsar), World Heritage Convention, UN Convention to Combat Desertification, United Nations Framework Convention on Climate Change, Convention on Migratory Species, and United Nations Convention on the Law of the Sea.

The State of Pangara has had a Water Code since 1973. The State of Sambara adopted a Water Law two years ago, and the State of Tamara only has an old Natural Resources Code<sup>2</sup>, and sees the adoption of a national Water Law as an opportunity for resolving its water problems.

In order to resolve the inter-state allocation of waters, Sambara and Pangara established the Sambara River Commission.

Although the country still has some oil and gas reserves (decreasing), most of the energy comes from hydropower generation.

The country has two major dams: the Gudi Dam and the Roten Dam, both located on the Takong River stream, within the State of Pangara. The Gudi Dam is upstream of the point at which the Sambara River joins the Takong, the Roten Dam is downstream from that point and highly dependent for its proper functioning on an adequate flow from the Sambara.

Due to an increasing demand in energy, Konfundistán is discussing a large bio-fuels programme from which Sambara will be the most likely State to benefit. There are major risks, including land conversion, native forests conversion (Monte Gordo and Pingimanjaro), all of which has given rise to massive protests and created a sense of political instability.

The political scenario of Konfundistán is the following: At the national level, the Government is a coalition of conservative parties (the Union of Konfundistán), and (less represented) the Social Democratic Party. The Conservatives are well represented in the States of Pangara and Sambara. The Social Democrats, together with the Greens, are in the Legislative Assembly of the Tamara State.

### **Akinostán**

The Kingdom of Akinostán is a constitutional monarchy, organised as a centralised State.

The Constitution, which dates back to 1843, gives the monarch several powers, including the one of decentralisation.

Decentralisation has been the trend in recent years and this has had a considerable impact in the democratisation of the country institutions and in the administration of the natural resources. Grass-roots organisations, indigenous peoples and human rights groups have flourished and promoted a further decentralisation process, which led to the establishment of local councils, with growing administrative and legislative powers.

The capital of the Akinostán Kingdom is the city of Palmyra. With an overall population of 2 million, Palmyra also has the biggest harbour of the region, located 50 km inland from the

---

<sup>2</sup> However, through the support provided by the Natural World Union, it has embarked in a major undertaking to update its entire natural resources legislation, and several drafts are already under discussion in the Federal Assembly).

South Sea. With a growing export and import industry, it has received a major loan from the INTERSTÁN Bank (a MERCOSTÁN institution) to expand the capacity of its harbour, modernise its facilities, and deepen the channel of the Palmyra River, one of the 3 arms of the Takong Delta. This river has been receiving a lesser flow of water, leading to the risk of paralysing the proper operation of the harbour.

This major undertaking has received the blessing of the government and the industry lobby, but the opposition of environmental groups, who see this as affecting the migration of the giant black salmon from the marshes to the sea, and also of the Tilapi (they fear it might have negative impacts on the coastal and island environment).

The Tilapia Archipelago is a group of 3 islands located offshore of the Takong Delta. These islands (two of them are in Akinostán and one is from Konfundistán) are inhabited by the Tilapi, an indigenous group of 150.000 people that live from fishing, and mussel collection.

The Tilapi have joined a political movement of international dimensions, “Rights, Food and People”, which is planning a big march to Cartago, the capital of Konfundistán, to exert political pressure to increase the water level of the Takong River, protect the Black Salmon Marshes, the Takong Delta and its area of influence.

Akinostán is a centralised country in which the powers to regulate national resources lay within the central government. In recent years, and due to growing awareness and empowerment of local groups, the country started a policy towards decentralisation, which has given the local councils the power to regulate natural resources, establish protected areas, and --increasingly-- a voice in the central government politics.

The Government of Akinostán has been for many years a coalition of the Social Democratic Party (Socialist Party of Akinostán) and the Green Party (Green Akinostán). This coalition has enabled a democratisation of the State institutions, a growing decentralisation, and public participation.

The National Constitution of 1843 incorporated through an amendment the right of all Akinostanis to live in a clean environment, and granted indigenous and local groups rights to participate in decision-making. The decentralisation process has increased the power of these groups in the country’s political scenario.

Akinostán is a member of the United Nations, and Party to most of the global treaties relating to the protection of the environment and conservation of natural resources<sup>3</sup>, and an active supporter of the Convention on Biological Diversity (CBD), in which context it has been promoting its work on freshwater. In this regard, Akinostán leads a coalition of States to start, within the framework of the CBD, the negotiation of a protocol to the Convention aiming at promoting the sustainable utilization of transboundary watercourses, as well as

---

<sup>3</sup> <sup>3</sup> Convention on Biological Diversity, Convention of Wetlands of International Importance (Ramsar), World Heritage Convention, UN Convention to Combat Desertification, United Nations Framework Convention on Climate Change, Convention on Migratory Species, and United Nations Convention on the Law of the Sea.

the ratification process of the United Nations Convention on the Law of Non-Navigational Uses of International Watercourses.

Akinostán is a founding member of the MERCOSTÁN, and a Party to the Takong River Treaty. The site of the Takong River Commission is in the city of Palmyra.

The Parliament of Akinostán has adopted a new Water Law, which regulates issues of quantity, quality, allocation of water for different users, including the environment, the establishment of the river basin commission and water councils at the local level, and also contemplates the establishment of a system of Payment for Ecosystem Services (PES). The implementation of the new Water Law has faced serious difficulties. The PES system, which is supposed to be implemented across the country to regulate various processes, has so far been tested, in an initial phase, to regulate the level and quality of waters of the Black Salmon Marshes. Various decrees are discussed in the Parliament with a view to implementing other provisions of the Law.

### **The sources of conflict**

The Takong River is a classic example of multiple uses of the waters within a river basin.

The primary sources of conflict are not only internal to one country, but also have a transboundary (international) dimension.

The internal sources of the conflict, relate to the 3 Federated States of the Kingdom of Konfundistán, and the external affects the international relations between Konfundistán and Akinostán, which is located downstream.

Out of this conflict, at least 5 (five) groups have emerged, each of them with a slightly different vision of the problem, and the possible solutions.

These five groups are:

- Group 1: The State of Pangara
- Group 2: The State of Sambara
- Group 3: The State of Tamara/Kingdom of Konfundistán
- Group 4: The Kingdom of Akinostán
- Group 5: A coalition of environmentalists and indigenous peoples

Key sources of conflict are:

- 1) The State of Pangara, located upstream sees itself as the owner of the sources of the Takong waters. Pangara is a highly industrialised State, and within its territory are the two hydropower plants of the Kingdom. With a strong industry lobby present in its internal political scenario, its interest is to maintain the industrial base, which is also a significant source of income for the entire Kingdom.

- 2) The State of Sambara is the agricultural base of the Kingdom. The waters of the Sambara River are used for irrigation of the agricultural land (90% of the entire agricultural production comes from the State of Sambara).
- 3) Bearing in mind that the Sambara River flows into the Takong north of the Roten Dam, Pangara claims that Sambara should maintain a certain level of flows to continue running the dam, even more considering the prospective plans to build a new mega-dam (Papirostán) 200 km downstream from the Roten Dam. This project will have considerable environmental effects (including population movements), an issue which does not seem to be well understood by the political parties of Pangara.
- 4) A major challenge (but also an opportunity) for the Kingdom, but in particular for the State of Sambara, is represented by the new national policy on bio-fuels.
- 5) The State of Tamara (and the Kingdom of Konfundistán at large) faces the problem of increasing population, with augmenting water demands for domestic use, and to maintain some agricultural lands in the north of the State as well as the section of the Black Salmon Wetlands located within the territory of Konfundistán.
- 6) The Kingdom of Akinostán claims a more equitable apportionment of the waters. The environmental lobby, the tourist lobby, the industrial lobby (Palmyra Harbour) and also the indigenous peoples, that see their livelihoods at risk, are pleading for a long term solution of the problem of the water quantity. Akinostán is confronted with the internal political problems of having to reconcile different interests: environmental/livelihoods of local population/economical for the entire country.
- 7) The Coalition of Environmentalists and Indigenous Peoples, active in the two countries (Akinostán and Konfundistán), see themselves as the custodians of the Black Salmon Marshes, the protection of fisheries, the archaeological sites of the Takong Delta, and have the permanent dilemma to try to reconcile the increasing demands coming from an expanding tourist industry (a significant source of income) with economic development.

## **Challenge**

The challenge is to identify a proposal set of arrangements (Agreements, Treaties, Institutions, Legislation, reforms, incentives) that will satisfy to the fullest extent possible the need and interest of the five Parties to the dispute.

To achieve this, the Parties will need to agree a process for a way forward.

The World Commission on Rivers has recently become involved in supporting dialogues.

## **Towards a solution**

The different groups of stakeholders and Parties in the conflict decided to submit the case to the World Commission on Rivers, an international organisation specialised in providing assistance and establishing dialogues around the world to improve water governance.

The World Commission on Rivers is celebrating its annual session in the city of Palmyra. The annual session of the World Commission of Rivers coincides with the annual meeting of Parties of the Takong River Commission (which has its seat in Palmyra).

As stated previously, the Takong River Commission (TRC) has historically been ineffective. However, there is renewed interest among stakeholders about revitalizing the TRC and determine how it can help to resolve the current set of disputes across the basin.

The World Commission on Rivers has chamber (“the Chamber”) comprising a President and two Vice-Presidents, which can call upon experts to provide advice and consultative opinions in cases submitted by its member States.

The opinions of the Chamber are recommendatory, but State practice has demonstrated that they have been instrumental in creating a common understanding on water allocation, navigation, quality and in general on sustainable utilization issues around the world.

As part of its activities, the Chamber has been instrumental in establishing multi-stakeholder platforms of negotiation in river basins around the world.

With a view to establishing the basis for a long-term solution for the Takong River Basin and, in particular, an equitable and sustainable utilization of the waters, the groups have been invited to a two-day closed door session in the city of Palmyra.

According to the Statutes of the Chamber, the Parties, after an in-depth analysis of the case, will be given the possibility to make an oral presentation, which will be recorded in the proceedings of the case.

After hearing the different delegations, the Chamber will deliver a consultative opinion.

## **Exercise**

### **a) General Instructions**

- Every group is requested to read the case and follow the instructions.
- Basic specific group instructions will be provided to each individual group.
- The groups are encouraged to use as much of the information contained in the case as possible.
- In order to build up a group’s position, they are also encouraged to use other sources and arguments that have not been mentioned in the case, but relate to it.
- The groups should carefully consider the legal frameworks and governance structures in the States or Kingdoms in which they are active. Groups may suggest governance and law reform processes.
- Groups will work in closed sessions. However, before participating in the multi-stakeholders dialogue before the Chamber, they can establish bilateral dialogues with other groups, with a view to strengthening their own positions, and setting possible compromises outside the formal process before the World Commission on Rivers and its Chamber.



## b) Schedule

### Thursday 14 February

#### **14:00-15:45: Setting up the exercise and scenario**

- Distribution in groups
- Every group comes to an understanding of the activities
- Every group appoints a **moderator** for the discussions
- Every group appoints a **Head of Delegation** to represent the group in the formal multi-stakeholders dialogue that will be convened by the World Commission on Rivers
- During the discussions, the groups will formulate a **common set of positions**

#### **15:45-16:15: Coffee break**

- Groups will continue the discussions during coffee break

#### **16:15-18:00: Group discussions continue**

- The groups will formulate a formal **10 minutes briefing** for a multi-stakeholders session convened and moderated by the Chamber
- The groups will prepare proposals to take to the other groups with a view of negotiating trade-offs and agreeing common positions
- Between this time and the beginning of the next session on Friday morning, the groups can conduct **informal consultations** with other groups
- These consultations have the objective to allow groups to agree trade-offs between the groups, and negotiate common positions
- The informal negotiations can take place on a bilateral or on a multilateral basis
- The informal consultations can continue during breakfast on Friday and until the start of the morning session (even on the bus to the meeting place)

### Friday 15 February

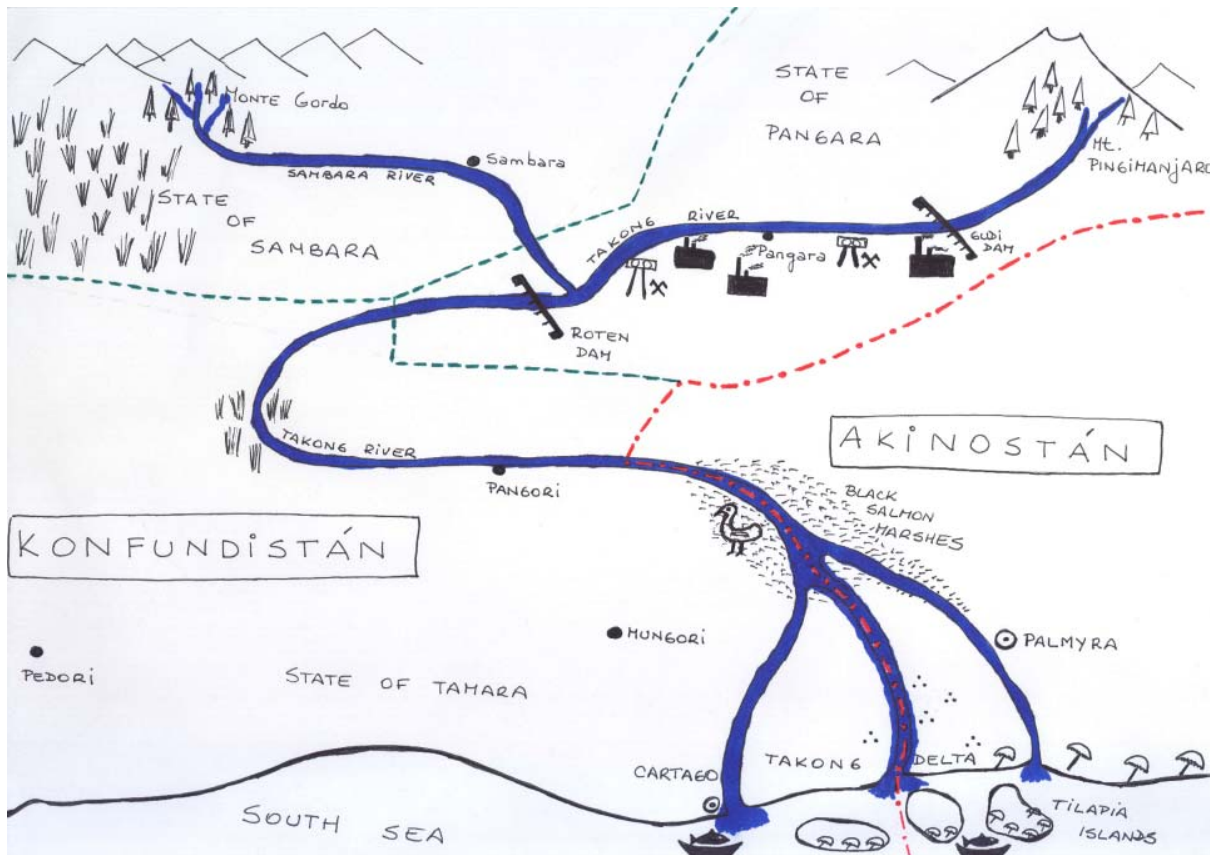
#### **09:15-11:00: Multi-stakeholders dialogue**

- The Chamber, represented by its President and two Vice-presidents will chair the session
- Every delegation, through the Head of Delegation will make a **10 minutes oral submission** about the position of the group
- The oral submission can include agreements with other groups
- The Chamber will moderate the dialogue and **suggest options** that will have to be discussed and eventually agreed by the groups

#### **11:00-11:45: Coffee break**

#### **11:45-13:00: Plenary**

- The Chamber will suggest a set of recommendations to expand the set of agreements reached by the groups
- Synthesis of the exercise



The Rio Takong Basin

## BRIEFING AND INSTRUCTIONS FOR THE INDIVIDUAL GROUPS

### Group 1: State of Pangara

- The group will work in a **close session**.
- The group will appoint a **moderator**.
- The group will appoint a **Head of Delegation** to represent the group in the multi-stakeholders dialogue before the Chamber of the World Commission on Rivers.
- The group will formulate a **common set of positions**.
- The group will prepare a formal **10 minutes briefing** to be presented at the multi-stakeholders dialogue before the Chamber.
- If desired, the group can conduct **informal negotiations** with other groups to explain its interests, reinforce its position, agree a common position, or make concessions and agree trade-offs.
- Through the Head of Delegation, the group will make a **10 minutes submission** at the multi-stakeholders dialogue before the Chamber

### Key issues to be considered by Group 1

- The State of Pangara is an upstream State.
- It has a strong industrial lobby.
- The State of Pangara is the industrial base of the country.
- It is also the energy base of the country
  - 2 dams
  - Construction of a new one
- The State needs more water from the Sambara River.
- This group has a choice to:
  - 1) be conciliatory but securing its own interest or
  - 2) seek to use its power to dominate

## BRIEFING AND INSTRUCTIONS FOR THE INDIVIDUAL GROUPS

### Group 2: State of Sambara

- The group will work in a **close session**.
- The group will appoint a **moderator**.
- The group will appoint a **Head of Delegation** to represent the group in the multi-stakeholders dialogue before the Chamber of the World Commission on Rivers.
- The group will formulate a **common set of positions**.
- The group will prepare a formal **10 minutes briefing** to be presented at the multi-stakeholders dialogue before the Chamber.
- If desired, the group can conduct **informal negotiations** with other groups to explain its interests, reinforce its position, agree a common position, or make concessions and agree trade-offs.
- Through the Head of Delegation, the group will make a **10 minutes submission** at the multi-stakeholders dialogue before the Chamber

### Key issues to be considered by Group 2

- Sambara River.
- The State of Sambara is the agricultural base of the country.
- The State also has forests.
- The State is not willing to give up more water unless....
- A major challenge is the new energy policy, which might lead to the transformation of land, including forests land.
- This group has a choice to:
  - 1) be conciliatory but securing its own interest or
  - 2) seek to use its power to dominate

## BRIEFING AND INSTRUCTIONS OR THE INDIVIDUAL GROUPS

### Group 3: State of Tamara / Kingdom of Konfundistán

- The group will work in a **close session**.
- The group will appoint a **moderator**.
- The group will appoint a **Head of Delegation** to represent the group in the multi-stakeholders dialogue before the Chamber of the World Commission on Rivers.
- The group will formulate a **common set of positions**.
- The group will prepare a formal **10 minutes briefing** to be presented at the multi-stakeholders dialogue before the Chamber.
- If desired, the group can conduct **informal negotiations** with other groups to explain its interests, reinforce its position, agree a common position, or make concessions and agree trade-offs.
- Through the Head of Delegation, the group will make a **10 minutes submission** at the multi-stakeholders dialogue before the Chamber

### Key issues to be considered by Group 3

- The majority of the population lives in the State of Tamara.
- The population of the State is increasing.
- The State lacks and needs water.
- The State would like to maintain some agricultural land close to the river.
- Within the State are important wetlands (shared with the neighbouring country).
- Look for a more equitable allocation of the waters of the river.
- Major challenge is the downstream position, the dominant position of the other two States, and the energy needs.
- *Vis a vis* Akinostán: Upstream / Transboundary context.
- This group has a choice to:
  - 1) be conciliatory but securing its own interest or
  - 2) seek to use its power to dominate



## **BRIEFING AND INSTRUCTIONS FOR THE INDIVIDUAL GROUPS**

### **Group 4: Kingdom of Akinostán**

- The group will work in a **close session**.
- The group will appoint a **moderator**.
- The group will appoint a **Head of Delegation** to represent the group in the multi-stakeholders dialogue before the Chamber of the World Commission on Rivers.
- The group will formulate a **common set of positions**.
- The group will prepare a formal **10 minutes briefing** to be presented at the multi-stakeholders dialogue before the Chamber.
- If desired, the group can conduct **informal negotiations** with other groups to explain its interests, reinforce its position, agree a common position, or make concessions and agree trade-offs.
- Through the Head of Delegation, the group will make a **10 minutes submission** at the multi-stakeholders dialogue before the Chamber

### **Key issues to be considered by Group 4**

- Akinostán is located downstream a river that is shared with another country.
- Within Akinostán are important wetlands (water reservoirs, species, fish).
- The State has important tourist attractions, and the tourism lobby is relevant.
- There is a considerable Environmental lobby.
- There is a strong Indigenous peoples lobby.
- The expansion of the harbour might cause some problems.
- Due diligence of States in managing its own resources.
- Obligation to cooperate with other States.
- This group is not very powerful. So, it may wish to seek alliances with other groups. One of the advantages it does bring is the harbour, the ecotourism opportunities, etc.





## BRIEFING AND INSTRUCTIONS FOR THE INDIVIDUAL GROUPS

### Group 5: Coalition of Environmentalists & Indigenous Peoples

- The group will work in a **close session**.
- The group will appoint a **moderator**.
- The group will appoint a **Head of Delegation** to represent the group in the multi-stakeholders dialogue before the Chamber of the World Commission on Rivers.
- The group will formulate a **common set of positions**.
- The group will prepare a formal **10 minutes briefing** to be presented at the multi-stakeholders dialogue before the Chamber.
- If desired, the group can conduct **informal negotiations** with other groups to explain its interests, reinforce its position, agree a common position, or make concessions and agree trade-offs.
- Through the Head of Delegation, the group will make a **10 minutes submission** at the multi-stakeholders dialogue before the Chamber.

### Key issues to be considered by Group 5

- Ensure due diligence by the States in managing its natural resources
- Ensure a sustainable management of the Wetlands
- Conservation of Fisheries
- Conservation of Archaeological sites
- Indigenous peoples
- Human Rights
- International law. International duties and obligation of the States *vis a vis* other States and its own nationals
- This group can choose to either:
  - 1) play the role of activists and advocacy or
  - 2) play a convening role that facilitates the development of agreements between other groups prior to the sitting of the Chamber



## BRIEFING AND INSTRUCTIONS FOR THE INDIVIDUAL GROUPS

### Group 6: The Chamber

- The Chamber will be integrated by a President and 2 Vice-presidents.
- The Chamber will have 3 advisors.
- The Chamber will work in a **close session**.
- During the Multi-stakeholders session, the Chamber will **moderate the dialogue**.
- It will **ensure that every delegation sticks to the 10 minutes** time to make its oral submission.
- After hearing the different delegations, the Chamber will device a set of recommendations for a forward looking enabling process for the provision of environmental flows in the basin.
- In its recommendations, the Chamber might suggest options that need to be discussed and agreed (or eventually not) by the different delegations.
- In addition, and to expand the set of agreements and reduce the issues under dispute, the Chamber will prepare a list of disputed elements.
- This list will have to take a forward looking view, and consider, among others, the following elements:
  - Benefit sharing
  - Trade-offs
  - Compensation and incentives
  - Legal reform
  - Appropriate institutional set up

## Annex 3

### Topic Checklists

---

#### **Checklist 1: Understanding Flow Requirements, Setting Up EFAs**

1. Identify expertise – needed and available
2. Collate existing data and establish data collection
3. Create a data centres – a data management system and library
4. Conduct training and build capacity – build multi-disciplinary teams
5. Develop and start implementing a research programme
6. Conduct pilot studies
  - select method, based on problems, resources and goals
  - data acquisition and analysis
  - knowledge sharing and social learning
  - monitoring

#### **Checklist 2: Setting Objectives / Working With Scenarios**

1. Generate scenarios for the river
2. Analyse river flows under each scenario
3. Analyse the ecological, social and economic impacts of alternate flow regimes
4. Use evidence in making / negotiating choices and trade offs
5. Incorporate choices of flow thresholds into development planning

#### **Checklist 3: Modifying Management Infrastructure**

1. Review all alternatives to the current operation of the dam or abstraction / or for design and operation of new dams
2. Conduct feasibility studies and environmental and social impact assessments. Develop recommendations
3. Inform stakeholders and the public; facilitate debate on options
4. If there are feasible and acceptable options, develop detailed engineering design, mobilise finance and undertake approval processes
5. Implement new management and undertake monitoring

#### **Checklist 4: Understanding Costs and Benefits / Covering the Costs**

1. Develop clear conceptual and empirical understanding of full economic costs and benefits
2. Determine if action is justified. If yes, is there a financial gap that needs to be covered.
3. Assess financing needs. What costs need to be covered for adapting infrastructure? For ensuring change is socially and environmentally acceptable?
4. Determine which stakeholders bear costs.
5. Develop incentives and trading mechanisms for covering costs and changing behaviour.

#### **Checklist 5: Elements of Reform Processes – Policy, Legal and Institutional**

1. Review current policies and legislation, including hard and soft law. Identify entry points in national and international processes (eg in strengthening national planning for IWRM, transboundary cooperation agreements). Find basis for engagement in current policies and law. Capitalise on existing processes.
2. Review institutional setup, including mechanisms for implementation and monitoring.
3. Properly define the EF concept – in legal, technical and practical terms. Seek input from technical experts, then influence policy processes in legislatures. Ensure all water users and sectors are well-informed.
4. Incorporate public dialogue into reform processes, through ‘socialisation’ of concept and communication of practical meaning. Learn from practical pilots and testing. Support social learning. Facilitate civil society input into legislative reforms. Facilitate input and participation in planning.
5. Identify opportunities for transboundary alignment among all riparians. Align bottom-up and top-down processes.
6. Integrate EF and water management into wider policies, law and institutions relating to development in a basin.
7. Consider institutional set-up that will enable implementation of policies and laws.
8. Draft laws and policies and review.

## Annex 4

IW:LEARN Regional Workshop on Application of Environmental Flows in River Basin Management

Foz do Iguaçu, Brasil

11-15 February 2008

### Final List of Participants

Name	Forenames	Institution & Address	Job Title	E-mail
<b>Aguirre</b>	Mario	Regional Office for South America IUCN Quiteño Libre 249 y la Cumbre Casilla 17 17 626 Quito Ecuador	Water Officer	<a href="mailto:mario.aguirre@sur.iucn.org">mario.aguirre@sur.iucn.org</a>
<b>Arcelus</b>	Alejandro	Comision Administradora del Rio Uruguay Costanera Norte s/n Paysandu Uruguay	Technical Secretary,	<a href="mailto:arcelus@caru.org.uy">arcelus@caru.org.uy</a>
<b>Ayabaca Cazar</b>	Edgar	EMAAP-Q Av. Mariana de Jesús N32-143 e Italia (esquina) Quito Ecuador	Executive Director of Eastern Rivers Project and Hydrology	<a href="mailto:eayabaca@emaapq.com.ec">eayabaca@emaapq.com.ec</a>
<b>Ballantyne</b>	Danroy	Central Water and Sewerage Authority PO Box 363 Kingstown St Vincent & the Grenadines	Engineer Technician - Hydrology	<a href="mailto:danroyballantyne@hotmail.com">danroyballantyne@hotmail.com</a>

Name	Forenames	Institution & Address	Job Title	E-mail
<b>Calderon Elizalde</b>	José	Fideicomiso de Microcuencas Edificio SAGARPA Carr. a Chicoasén s/n Col Los Laguitos Tuxtla Gutiérrez Chiapas, Mexico	Coordinador de Microcuencas	<a href="mailto:csmicrocuencas@firco.gob.mx">csmicrocuencas@firco.gob.mx</a>
<b>Castillero</b>	Cecilio	Fundacion Natura Llanos de Curundu, entrada del Museo Antropológico Reina Torres de Araúz, Curundu Housing casa 1992 A-B Ciudad de Panamá Panamá	Project Officer	<a href="mailto:ccastillero@naturapanama.org">ccastillero@naturapanama.org</a>
<b>Contreras</b>	Aldrin	Intendencia de Recursos Hídricos del Instituto Nacional de Recursos Naturales - INRENA Calle Diecisiete N° 355, Urbanización El Palomar, San Isidro, Lima - 27 Apartado Postal 4452 Limal Peru	Profesional en Recursos Hídricos	<a href="mailto:acontreras@inrena.gob.pe">acontreras@inrena.gob.pe</a>
<b>Cordoba</b>	Rocio	UICN Mesoamérica Apartado postal: 146 - 2150 Moravia Costa Rica	Coordinadora, Unidad de Gestión del Agua	<a href="mailto:rocio.cordoba@iucn.org">rocio.cordoba@iucn.org</a>
<b>de Freitas</b>	Glauco	The Nature Conservancy Central Savannas SRTVS Qd. 701 - Conj. D - Bl. A Brasília, 70.340-907 Brasil	Great Rivers Partnership Coordinator - Brazil	<a href="mailto:gfreitas@tnc.org">gfreitas@tnc.org</a>



<b>Name</b>	<b>Forenames</b>	<b>Institution &amp; Address</b>	<b>Job Title</b>	<b>E-mail</b>
<b>de Noack</b>	Jeannette	GWP Guatemala 9 Calle 10-54, Zona 1 Ciudad de Guatemala Guatemala	GWP Guatemala Coordinator	<a href="mailto:Jeanette.noack@gmail.com">Jeanette.noack@gmail.com</a> <a href="mailto:jeanettedenoack@calas.org.gt">jeanettedenoack@calas.org.gt</a>
<b>de Souza</b>	José Luiz	Ministério de Integração Nacional Esplanada dos Ministerios Bloco E, Sala 876 Brasilia DF	Specialist	<a href="mailto:jl-souza@uol.com.br">jl-souza@uol.com.br</a>
<b>Friedrich</b>	Nelton Miguel	Itaipu Binacional Usina Hidrelétrica de Itaipu Av. Tancredo Neves, 6.731 85866-900 Foz do Iguaçu, Paraná, Brasil	Diretor de Coordenação e Meio Ambiente	<a href="mailto:nelton@itaipu.gov.br">nelton@itaipu.gov.br</a>
<b>Gaviño Novillo</b>	Marcelo	University of Buenos Aires Diagonal 78 N 959 1900 - La Plata Argentina	Professor of IWRM	<a href="mailto:marcelogavino@yahoo.com.ar">marcelogavino@yahoo.com.ar</a> <a href="mailto:e3@yahoo.com.ar">e3@yahoo.com.ar</a>
<b>Gondim</b>	Joaquim	ANA Setor Policial Area 5, Quadra 3, Blocos L CEP: 70610-200 Brasilia DF	Superintendent of Multiple Uses of Water	<a href="mailto:joaquim@ana.gov.br">joaquim@ana.gov.br</a>
<b>Gutierrez Diaz</b>	Joaquin	CIGEA Calle 20 esq. 18-A Miramar, Playa La Habana Cuba	Principal Specialist	<a href="mailto:joaquin@ama.cu">joaquin@ama.cu</a>
<b>Iza</b>	Alejandro	IUCN Environmental Law Centre Godesberger Allee 108-112 53175 Bonn Germany	Head, IUCN Environmental Law Programme Director, IUCN Environmental Law Centre	<a href="mailto:alejandro.iza@iucn.org">alejandro.iza@iucn.org</a>

Name	Forenames	Institution & Address	Job Title	E-mail
<b>Krauskopf Neto</b>	Ricardo	Hydrologic and Energy Studies Division Itaipu Binacional Usina Hidrelétrica de Itaipu Av. Tancredo Neves, 6.731 85866-900 Foz do Iguaçu, Paraná, Brasil	Civil Engineer	<a href="mailto:rkraus@itaipu.gov.br">rkraus@itaipu.gov.br</a>
<b>Lopez Arzamendia</b>	Miguel Angel	Comité Intergubernamental Coordinador de los Países de la Cuenca del Plata (CIC) Paraguay 755, Piso 2° C1057AAI Buenos Aires, Argentina	Secretary General	<a href="mailto:malopez@cicplata.org">malopez@cicplata.org</a>
<b>Mazzola</b>	Marcelo	ANA Setor Policial Area 5, Quadra 3, Blocos L CEP: 70610-200 Brasilia DF	Water Resources Specialist	<a href="mailto:marcelo.mazzola@ana.gov.br">marcelo.mazzola@ana.gov.br</a>
<b>Mendler de Suarez</b>	Janot	GEF-IW:LEARN 56 Orchard Lane Wayland, Massachusetts 01778-1908 USA	Deputy Director & Project Coordinator	<a href="mailto:janot@iwlearn.org">janot@iwlearn.org</a>
<b>Meneses Cardoso da Silva</b>	Luciano	ANA Setor Policial Area 5, Quadra 3, Blocos L CEP: 70610-200 Brasilia DF	Manager of Water Rights	<a href="mailto:lmeneses@ana.gov.br">lmeneses@ana.gov.br</a>
<b>Musalem Castillejos</b>	Karim	25 de Mayo 1541 CP1549 Asuncion Paraguay	Investigador Doctorado CATIE-University of Wales	<a href="mailto:k.musalem@gmail.com">k.musalem@gmail.com</a>

<b>Name</b>	<b>Forenames</b>	<b>Institution &amp; Address</b>	<b>Job Title</b>	<b>E-mail</b>
<b>Pinzon</b>	Zuleika	Fundacion Natura Llanos de Curundu, entrada del Museo Antropológico Reina Torres de Araúz, Curundu Housing casa 1992 A-B Ciudad de Panamá Panamá	Executive Director	<a href="mailto:zpinzon@naturapanama.org">zpinzon@naturapanama.org</a>
<b>Pol</b>	André	Secretariat of Water Resources Ministry of Environment Plano Nacional de Recursos Hídricos Secretaria de Recursos Hídricos e Ambiente Urbano Ministério do Meio Ambiente SGAN Qd. 601 Lote 01 Ed. Codevasf - 4º andar Brasília DF Brasil	Specialized Technician - Biologist	<a href="mailto:andre.pol@mma.gov.br">andre.pol@mma.gov.br</a>
<b>Roude</b>	Eduardo	FonPlata Irala 573 Santa Cruz de la Sierra Bolivia	Technical Analyst	<a href="mailto:eroude@fonplata.org">eroude@fonplata.org</a>
<b>Rucks</b>	Jorge	Department of Sustainable Development - DSD Organization of American States OAS Junín 1940 C 1113AAX, Buenos Aires, C.F. Argentina	Chief of South America Geographic Area	<a href="mailto:jrucks@oas.org">jrucks@oas.org</a>

Name	Forenames	Institution & Address	Job Title	E-mail
<b>Scalia Alves Ferreira</b>	Raquel	Secretariat of Water Resources Ministry of Environment Plano Nacional de Recursos Hídricos Secretaria de Recursos Hídricos e Ambiente Urbano Ministério do Meio Ambiente SGAN Qd. 601 Lote 01 Ed. Codevasf - 4º andar Brasília DF Brasil	Specialized Technician	<a href="mailto:raquel.scalia@cnrh-srh.gov.br">raquel.scalia@cnrh-srh.gov.br</a>
<b>Smith</b>	Mark	IUCN Rue Mauverney 28 1196 Gland Switzerland	Water Management Advisor	<a href="mailto:mark.smith@iucn.org">mark.smith@iucn.org</a>
<b>Sugai</b>	Martha	COPEL Rua José Izidoro Biazetto, 158 – bloco A 81200-240 Curitiba PR Brasil		<a href="mailto:martha.sugai@copel.com">martha.sugai@copel.com</a>
<b>Toussaint</b>	Joseph Ronald	Ministère de l'Environnement 181 Haut Turgeau Port-au-Prince Haiti	Technical Adviser in Strategic Planning and International Cooperation	<a href="mailto:josephronaldt@yahoo.fr">josephronaldt@yahoo.fr</a>
<b>Zarate</b>	Patricia	Itaipu Binacional Usina Hidrelétrica de Itaipu Av. Tancredo Neves, 6.731 85866-900 Foz do Iguaçu, Paraná, Brasil	Electromechanical engineer	<a href="mailto:pvz@itaipu.gov.py">pvz@itaipu.gov.py</a>

## Annex 5

### Example of Completed Framework Action Plan

GEF IN:LEARN Regional Workshop on Application of Environmental Flows in River Basin Management

Taller Regional del GEF IN:LEARN sobre Aplicación de Caudales Ambientales en el Manejo de Cuenca Fluviales

February 11-15, Foz de Iguazú, Brazil



#### PARTICIPANT FRAMEWORK ACTION PLAN

Name: CLAUDIO KIMURA DE FREITAS  
Institution: THE NATURE CONSERVANCY  
Country: BRAZIL  
River Basin(s): PARAGUAY PARANA

#### Goals for Flow Management – Session 3

Section 1: What are possible goals for management of flows in your home basin or project?

1. IMPLEMENT A PILOT PROJECT USING A HOLISTIC APPROACH TO GUARANTEE ENVIRONMENTAL FLOWS IN A WATERSHED IN THE PARANA BASIN
2. WORK WITH THE GOVERNMENTAL AGENCIES AND HYDROPOWER SECTOR TO ENSURE TECHNICAL, POLITICAL, LEGAL AND ECONOMIC SUPPORT.

Section 2: What are your personal goals for ongoing learning about environmental flows? What role would you like to play in supporting environmental flows?

1. CREATE CAPACITY BUILDING ON E-FLOWS FOR KEY STAKEHOLDERS IN BRAZIL
2. GENERATE POLITICAL MOMENTUM
3. IMPLEMENT PILOT PROJECTS ON E-FLOWS
4. ENGAGE ENERGY SECTOR

#### Understanding Flows and Options for Integrated Flow Management – Session 8

Section 3: What are priority actions for your project/institution? What needs to be done provide the information needed to support integrated flow management?

- \* IMPLEMENT A PILOT PROJECT TO EXTRACT LESSONS LEARNED, TEST POSSIBLE SCENARIOS, ASSESS TRADE OFFS AND INFLUENCE PUBLIC POLICIES.
- \* DEVELOP A LEGAL FRAMEWORK TO SUPPORT E-FLOWS APPLICATION IN BRAZIL.

Section 4: What are your personal priority actions? What further learning do you want on flow assessment or options for flow management? Who will you communicate with about what you have learned?

- \* ENGAGE MORE ACTIVELY IN POLICY DISCUSSIONS, DISCUSS AND SPEND MORE TIME WITH LARGE USERS OF WATER TO UNDERSTAND THEIR CONSTRAINTS, AND OFFER OPPORTUNITIES.

### Enabling Implementation of Environmental Flows – Session 14

Section 5: What are priority actions for your project/institution? What action is needed to develop an enabling environment for environmental flows?

ENGAGE DECISION MAKERS AND DECISION MAKING INSTITUTIONS.  
FINANCIAL INSTITUTIONS  
CAPACITY BUILDING

Section 6: What are your personal priority actions? What further learning do you want on economic and governance needs for environmental flows? Who will you communicate with about what you have learned?

I THINK IT IS ESSENTIAL TO DEVELOP SOLID ENVIRONMENTAL SERVICES EVALUATION METHODOLOGIES IN ORDER TO SUSTAIN ENVIRONMENTAL FLOWS EXPERIENCES IN DEMO. I THINK TRAINING ON ENVIRONMENTAL ECONOMICS IS WHAT I WOULD LIKE TO FURTHER LEARNING.

---

### Resource needs – Session 15

Section 7: What resources are needed to implement your project/institutional priority actions? How will you get them?

\* WE WANT TO CREATE FUNDING MECHANISMS WITHIN THE ALREADY EXISTING MECHANISMS, LIKE, FOR EXAMPLE, THE ENVIRONMENTAL RESTORATION FUNDS. WE NEED TO WORK WITH DECISION MAKERS TO INFLUENCE THEM TO APPLY PART OF THE FUNDS FOR THE MAINTENANCE OF THE ENVIRONMENTAL SERVICES PROVIDED BY A RIVER AND SUPPORT E-FLOWS WORK. THIS CREATES A PERMANENT

Section 8: What resources are needed for your personal priority actions? How will you get them?

WE NEED POLICY EXPERTS AND EXTERNAL AFFAIRS STAFF ECONOMISTS TO DEVELOP ENV. SERVICES EVALUATION MODEL

SOURCE OF FUNDING

---

### Follow-Up Plans – Session 16

Section 9: What progress on your priority actions do you want to achieve by 1 month and 3 months from now?

- \* PUBLISH A BROCHURE ABOUT ENV. FLOWS
- \* HAVE APPROVAL OF FUNDS TO IMPLEMENT A RESTORATION PROJECT

## Annex 6

### Summary of Participants' Framework Action Plans

Participant	Goals for Flow Management	Priority Actions (Understanding Flows and Options for their Integrated Management)	Personal goals, priority actions and follow-up plans
Luciano Meneses (Brazil)	- Amending legislation on minimal release from hydraulic infrastructures according to eflows principles	- Define concepts and responsibilities for environmental or water resource agencies, e.g. through an international case study-based training course on flow assessment	- Reach out to water resource systems, e.g. the Council, about water rights and qualitative goals  - Draft a new piece of legislation with particular concern to defining water rights criteria
Miguel Angel Lopez Arzamendia (Paraguay)	- Navigation, sustainable use of water wildlife, wetland conservation, flood control	- Endorse seminars, publications, and technical reports to be published on institutional web pages under the "Framework Programme for the sustainable management of water resources in the Plata Basin"	- Expand knowledge and setting out for potential applications
Alejandro Arcelus (Argentina / Uruguay)	- Prioritise rivers which would allow for the highest quantity and quality of compatible uses without reducing the flow	- Recognition of River Uruguay Executive Commission (CARU) and interaction with water resources and reservoirs management organisations involved in the CARU's action plan  - Gather further essential information for the Upper Uruguay e.g. water users' needs, with a special focus on the damages from poor water quality	- Follow knowledge developments about eflows applicability to water quality and transboundary issues, and forward the workshop references to water resource managing institutions in both countries  - Arrange for an economic review of all direct and indirect benefits generated by different water uses, also through introducing the next Board Meeting of CARU the opportunity to include eflows into the Framework Programme
Jorge Rucks (Argentina, Bolivia, Brazil, Paraguay, Uruguay)	- Develop an integrated information system for hydroclimatic data among the 5 countries in the Plata basin  - Build the capacity of bilateral institutions in terms of legal developments for the IWM of transboundary rivers  - Incorporate key actors e.g. social organisations from the 5 countries into environmental management	- Devise participatory processes among all actors involved in the integrated water management of critical catchments and showcases.  - Incorporate relevant information into ongoing projects where transboundary catchments involved (e.g. River Cuareim between Brazil and Uruguay)  - Technical cooperation, information sharing, and policy development through 3 IWM plans for rivers and coastal areas by the II Division of the Dep. of Sustainable Development of OEA	- Prompt specific action within minor, yet critical catchments run by DDS where conflicts are harsher as so to test eflow assessment  - Drive conceptual contributions and methodologies into actual cooperation between OEA countries and environmental education programmes  - Submit 2 large projects (Plata and Amayon Basin) to GEF for approval and build the related partnerships to bring about additional capacity from NGOs and business outside OEA countries
Eduardo Roude (Argentina, Bolivia, Brazil, Paraguay, Uruguay)	- Coordinate competing uses through basin authorities (CIC/Fonplata/CIH) to secure sustainable delivery of water	- Provide for eflows considerations at the development stage of Fonplata's water-related projects	- Learn specific methodologies, advising executives and proposing expert staff recruitment for Fonplata-funded projects
Joaquin Gutierrez (Cuba)	- Promote acknowledgement of eflows and enhance the assessment process, also by liaising with the Directorate of Catchments at the National Institute for Hydraulic Resources and relevant Units at the Ministry of the Environment	- Launch a national workshop for capacity building and a call for proposals to revise eflow requirements for the main reservoirs in Cuba, e.g. to bind water quality criteria like oxygen content	- Advocate the application of eflow criteria to the GEF-IWCAM project in Cienfuegos Bay and Watershed with the Ministry of Science, Technology and Environment (CITMA) and the National Institute of Agrarian Reform (INRA)
Joseph Ronald Toussaint (Haiti)	- Secure and sustain water use for energy and irrigation purposes  - Increase livelihoods of local communities  - Reduce vulnerability of people to natural disasters and preserve water quality from chemical contaminants/pollutants	- Artibonite River Management Plan; Transboundary Diagnosis Analysis; water quality and seasonal flow regime assessment; ecological information of the river (estuary, wetlands, etc.) enhancing livelihoods of local communities  - Budget for the realisation of a Regional Workshop on the applicability of EFA to the Artibonite River and request for funding mobilisation from other sources than GEF (e.g. UNEP, CIDAD, government)	- Further extend the knowledge basis in relation to EFA e.g. through data management information systems, scenarios construction, river basin governance, cost-benefit analysis, ecosystem services theory  - Demonstrate eflows in connection to the main strategic river basins of Haiti in support of watershed management plans  - Communicate with high-level officers from the Ministry of Environment and Agriculture, members of the Binational River Basin Management Council as well as students in Environmental and Agricultural Faculties
Cecilio Castellero (Panamá)	- Manage water resources sustainably by prioritising critical areas of intervention and water users in each river basin	- Promote water resources conservation at the implementation level e.g. a demonstration project on the importance of considering eflows within national law or through a Watershed Management Plan  - Define and monitor eflows as modelling indicators for pilot experiences inside and outside the Panama Canal Basin (CHCP), Environmental Economics Methods, and site-specific experiences	- Get a better understanding of eflows and environmental economic valuations for the river basins at issue in Panama and contribute to the definition of guidelines to convey decisions  - Establish a working commission on eflows for the CHCP through Fundacion NATURA's CEO and share knowledge with partners e.g. IUCN, TNC, GEF  - Coordinate with relevant authorities in Panama in order to present EF as a useful tool for decision-making and cooperate with those acting in the CHCP to attempt replicating the ITAPU model as an environmental approach

Participant	Goals for Flow Management	Priority Actions (Understanding Flows and Options for their Integrated Management)	Personal goals, priority actions and follow-up plans
José Edgar Ayabaca (Ecuador)	- Preserve indigenous wildlife and the quality of drinking water delivered to the population	- Source valuable information about the regional flora and fauna indicating appropriate flow regimes and dimension and train through distance-learning courses on eflows  - Design a mechanism to facilitate cofunding of negotiations while establishing eflows within IWM  -Involve research institutes and universities to couple financial resources with water expertise	- Learn from similar countries' experiences with PES, develop scenario modelling skills and apply an EFA methodology accounting for the uniqueness of Andean forests and grasslands  - Workshop to present the biological research performed as well as the hydrological knowledge required to analyse flow regimes (1 month)  - Team to collect the socioeconomic information on eflows required e.g. conflict resolution and the IFIM methodology (3 months)
Jeanette de Noack (Guatemala)	- Learn innovative methodologies and the legal requirements to define and implement eflows	- Associate eflows to "Water Dialogues" to agree upon different uses and priorities, and boost further enhance water planning processes.  - Get together the various key actors e.g. government, users, academia, NGOs business to promote joint efforts  - Identify the appropriate methodologies and degree of application to review and harmonise legislation accordingly	- Motivate members of the international network and foster national and local initiatives for the implementation of relevant case studies  - Workshop development with GWP Guatemala's members to report on IW:LEARN participation and relationship with IUCN (1 month)  - Progress in identifying potential river basins where to research and keeping contacts with eFlowNet (3 months)
Zuleika Pinzón (Panamá)	- Define the different users' requirements in either Panama Canal or Santa María River basin to infer the respective eflow to find a balance between priorities	- Take part to the revision of relevant policy and law which relates to eflows, including HR regulation  - Identify potential partners to initiate pilot projects on eflows and secure co-funding for the implementation phase	- Share experiences with UTAPI, ACP, ANAM, CIDES, CAT  - Meet up with other stakeholders, mainly ANAM and ACP, to discuss eflow integration in the river basins under management (1 month)  - Coordinate the training of both NATURA staff and other relevant actors as well as the project development for 2009 (3 months)
Danroy Ballantyne (St. Vincent)	- Develop of a flow management plan for water basins and reservoirs while prioritising important users	- Curb the impacts of zero flows from the Cumberland River during the dry season and make a lesson for similar basins in the Region  - Improve the legislative framework for environmental inputs assessment, reform water resources legislation and increase public relations with industry, government and the community	- Develop a practical experience of calculation and allocation of eflows with regards to seasonal discharges  - Meet up with relevant authorities in St. Vincent and provide IWCAM with the references from the workshop, especially with regards to assessment and cost-benefit analysis (1 month)  - Organise a workshop with water users and environmentalists and supply water.net with the valuable information gathered (3 months)
Karim Musalem Castillejos (Mexico / Paraguay)	- Solve use conflicts and pollution by increasing water quality in poor areas downstream	- Harness all research techniques at the watershed level (participative and holistic IWM approaches, hydrologic data collection, etc.) and document existing experiences in assessing eflows  - Investigate the social dimension of eflows and engage farmers, etc. in the discussion	- Understand the complexity of eflows applications, discuss with academia, and help implement it at the operational level, also through teaching  - Incorporate eflows into current projects and assess usefulness before embarking on IWM research on the field
Aldrin Contreras Flores (Perú)	- Restore the natural ecosystems affected by water supply in each catchment	- Propose water authorities in Peru to incorporate eflows into the different pieces of legislation (water law, water rights and use regulation, Water Balance Assessment, etc.) and forward the lesson learnt to relevant decision-makers	- Resort to all technical information from abroad to evaluate EFA methodologies and support the most sound implementation in all river basins of Peru  - Plan for workshop on eflows at both the national and local level to draw attention on the need of incorporating them into the new national legislation
José Calderón Elizalde (Mexico)	- Promote the sustainable development in a holistic manner  - Prevent or reverse environmental deterioration  - Improve the livelihoods of communities	- Propel rural development, spread the concept among governmental or non-governmental actors and coordinate all the institutions in the work area  - Recruit and train personnel through either negotiation or coordination meetings	- Gain additional details about the value of indirect ecosystem services from environmental professionals and officers in the National Water Commission and NGOs to convey a better understanding of eflows  - Acquire references on eflows management at the small scale of subcatchments  - Coordinate the National Programme on Microcatchments with the National Water Commission and IUCN representatives in the State of Chiapas and develop a model fo 2012
Ricardo Krauskopf Neto	- Hydropower, navigation, communities, agriculture	- Propel the integrated management of information systems, community consultation, and action plans for catchments or microcatchments	- State of the art, knowledge gaps, applicable methods e.g. about the regional conditions and the reactions to different flow regimes
José Luiz de Souza (Brazil)	- Define strategies and disseminate information for restoring Sao Francisco Basin	- Research eflow methodologies applicable to semi-arid areas and provide for training and integration between environmental and legal issues	- Learn about eflows strategies and methods, e.g. conflict resolution and management
Marcelo Mazzola (Brazil)	- Formulate action plans to implement pilot projects by defining flows for significant river basins	- Bring on workshop discussions to colleagues and educate on the importance of eflows	- Study further cases e.g. the participative ones to better understand better the different methods and prepare divulgative documents



Participant	Goals for Flow Management	Priority Actions (Understanding Flows and Options for their Integrated Management)	Personal goals, priority actions and follow-up plans
<p>Glauco Kimura De Freitas (Brazil)</p>	<ul style="list-style-type: none"> <li>- Implement a pilot project in a watershed of the Parana Basin to quantify eflows, extract lessons, and assess trade-offs and influences on public policies</li> <li>- Work with governmental agencies and the hydropower sector to ensure technical, legal and economic support: "the partial deployment of funds for the maintenance of the environmental services provided by a river would equal a permanent source of funding"</li> </ul>	<ul style="list-style-type: none"> <li>- Generate political momentum by engaging decision makers and financial institutions in the discussion on a legal framework to support eflows application in Brazil</li> <li>- Build capacity on eflows for key stakeholders in Brazil and create funding mechanisms within already existing frameworks e.g. environmental compensation funds</li> </ul>	<ul style="list-style-type: none"> <li>- Develop robust evaluation methodologies for environmental services to sustain eflows experiences in Brazil</li> <li>- Publish a brochure on eflows and get fund approved to implement a demonstration project</li> </ul>
<p>Raquel Scalia Alves Ferreira (Brazil)</p>	<ul style="list-style-type: none"> <li>- Investigate on how to adapt eflow methodologies to the features of Brazilian river basins besides water quality issues</li> </ul>	<ul style="list-style-type: none"> <li>- Address the National Council of Water Resources (CNRH) in the light of a legislation reform according to the concept of eflows</li> </ul>	<ul style="list-style-type: none"> <li>- Present a summary of successful experiences about eflows to a Technical Commission in CNHR (1 month)</li> <li>- Realise a workshop to elaborate a concrete proposal for amending the national law in favour of eflows (3 months)</li> </ul>

## Annex 7

### Workshop Evaluation Form

---

IW:LEARN Regional Workshop on Application of Environmental Flows in River Basin Management

Foz do Iguacu, February 2008

#### Participant Assessment

Your opinion of this workshop is very important to guide IUCN in its support to future IW:LEARN workshops. Please take a few minutes to respond to the questions below. Thank you.

	Strongly Disagree	Disagree	Agree	Strongly Agree
<b>1. General logistical organisation</b>				
1.1 Overall, the workshop was well organised.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2 The venue facilities were suitable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.3 Overall, the organisation facilitated learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>2. General technical issues</b>				
2.1 The reading/preparation materials helped me to get more out of the workshop.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2 The content of the workshop matched the announced objectives of the workshop well	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.3 The workshop enabled an exchange of experience and information on environmental flows.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.4 Sufficient time was allocated for discussion.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.5 The exercises facilitated my learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.6 I am now more aware of sources of expertise and information on environmental flows.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.7 My knowledge of environmental flows and how it is relevant in my work has improved.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.8 I have acquired a significant amount of information that is new to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.9 I feel able to use what I have learned back home.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.10 Overall, the workshop was very useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**3. What I liked least about this workshop was:**

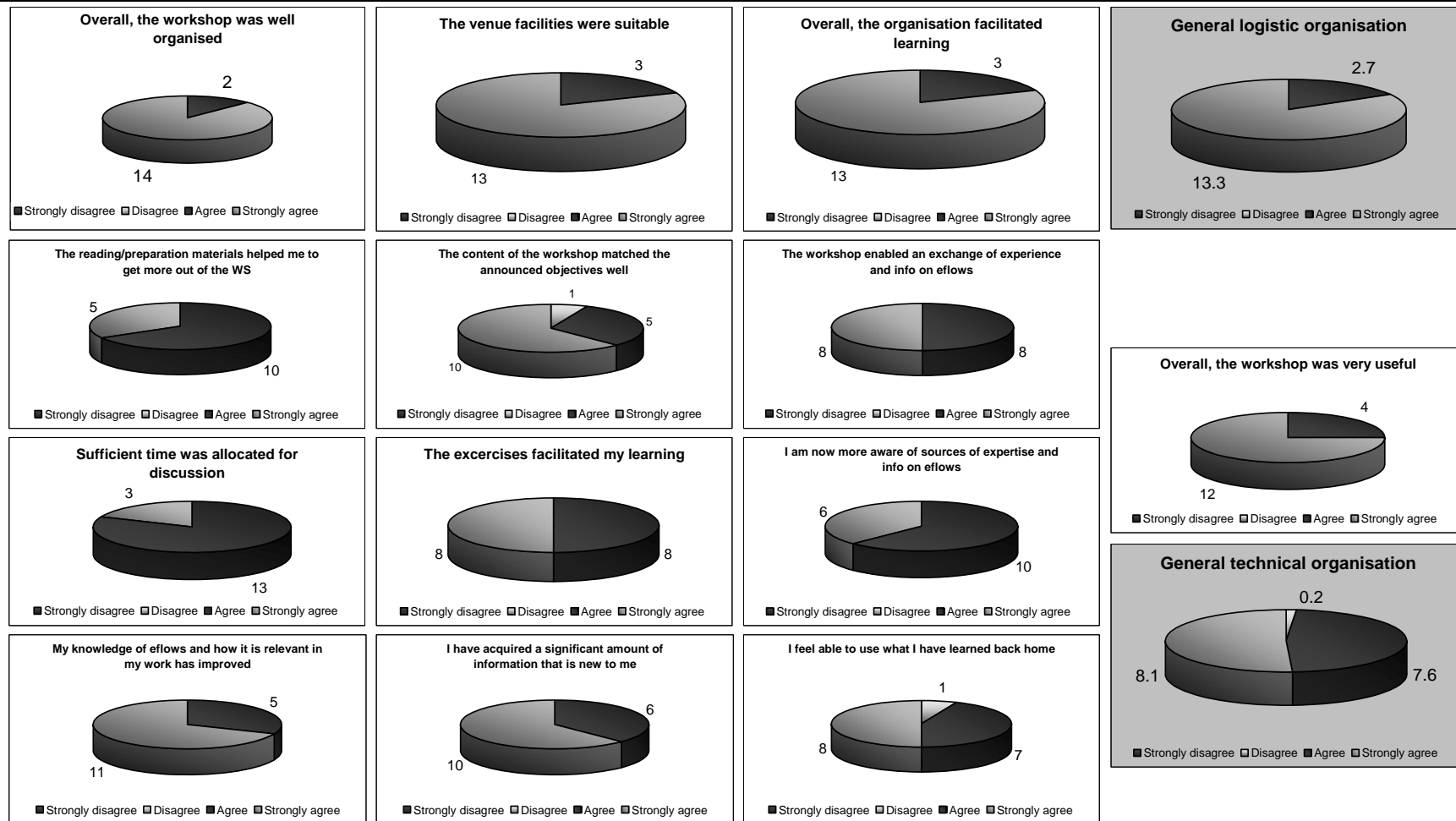
**4. The workshop delivery or organisation can be improved by:**

**5. What I liked most about this workshop was:**

**6. One example of how I would like to apply what I have learned in my project or work is:**

# Annex 8

## Responses to the Workshop Evaluation



## Annex 9

### Newsletter Story for the GEF IW:LEARN 'Bridges' Newsletter

---

#### **In the Shadow of the Dam: Using Learning to Promote Environmental Flows in Latin America and the Caribbean**

Glauco de Freitas is passionate about rivers. As Coordinator of the Great Rivers Partnership for The Nature Conservancy in Brazil, he understands that rivers are vital for development, for building nations' economic strength and for meeting people's aspirations for prosperity. But he also knows their beauty - and he wants to make sure there is development that does not destroy rivers.

Glauco came to the *IW:LEARN Regional Workshop on Application of Environmental Flows in River Basin Management*, in Foz do Iguaçu, Brazil, from February 11-15, 2008, to share his vision of how management of rivers can be successfully integrated into development. He told a story from TNC's work in Honduras to explain how 'environmental flows' can be used to do this. Environmental flows is the name given to the practice in rivers regulated by dams or abstraction of ensuring that the amount of water in the river – and the timing of flows – meets the needs of downstream ecosystems. As downstream people and development depend on the services from those ecosystems, environmental flows integrates the needs of people and nature in sustainable water resources development. For this reason, environmental flows is sometimes called 'flows for people and nature' or 'integrated flow management'.

Glauco used the example of the Patuca River to explain further. The Patuca is Honduras' longest river. It drains a 2.4 million hectare basin into the Caribbean, with cattle ranching in the upper part of the basin, but numerous Tawahka and Miskito indigenous communities and important national forest reserves lower down. Fisheries are an important source of livelihoods and sediment deposition by annual flood cycles sustains agriculture on the floodplains. There are currently no dams on the river, but a new dam is on the drawing board. Glauco asked participants, "If a dam is built, how should flows in the river be managed? What flow regime would be needed to keep downstream ecosystems healthy, and to sustain the ecosystem services from the river that people depend on?"

The workshop aimed to help participants understand how to answer these questions and what is needed to then actually implement environmental flows. There were 25 participants from a dozen countries in the Latin America / Caribbean region, including Caribbean islands, Central America, Andean countries and the Plata and Amazon basins in the heart of South America. They came to an inspiring location to consider what it takes to manage flows sustainably: the Itaipú dam on the Paraná River between Brazil and Paraguay. Itaipú is the second largest dam and the largest hydropower plant in the world, meeting some 25% of electricity demand in Brazil and 90% in Paraguay.

The event was organised by IUCN, in partnership with GEF IW:LEARN, TNC and the workshop hosts, Itaipú Binacional, the dam operating company, and the Itaipú Technology Park (PTI).

The programme covered the major issues that have to be addressed to use environmental flows. "Setting an environmental flow in a river is not a problem that you can just leave for hydrologists or ecologists to solve," explained Mark Smith, IUCN Water Management Advisor. "It's true that you have to have some understanding of how ecosystems respond to changes in river flows. For example, you have to be able to decide what sort of flow regime is needed to make sure that fish catch in a wetland downstream of a dam is maintained. This shows, though how important environmental flows are for both people and nature – so setting and environmental flow also involves economics, law, the participation of communities and the politics of water."

The week began with workshop sessions that introduced the participants to the principles of environmental flows and to the methodologies used for environmental flow assessments. These provide the data needed to determine how changes in flow regimes affect ecosystems, their services and the costs and benefits of water infrastructure development. To help understand how they are applied, participants looked at case studies from Latin America, as well as further afield, including the

Pangani basin in Tanzania, where IUCN and GEF are supporting application of environmental flows. With expert input from engineering staff from Itaipú, participants considered what actually has to be done to change the way dams are operated and therefore downstream flow regimes, what constraints have to be faced and what options need to be considered when engineering new dams.

After a field trip to a nearby biological reserve and to see the dam first hand – both outside and inside, up close to the turbines - participants then spent the final two days of the workshop looking at the enabling environment needed to implement environmental flows in practice. With support from Alejandro Iza and Roció Cordoba, IUCN specialists in environmental law and water governance, participants undertook a two-day role play exercise designed to explore use of economic incentives, policy and legal reform and multi-stakeholder negotiations in enabling implementation of environmental flows.

Participants worked intensively on the exercise, which was based on a fictional river basin – “The Takong” - shared by two countries and several federated states. Working groups were tasked with representing different governments and different interest groups in negotiations over allocation of water in the basin and development of water infrastructure. Each group had to present its case to a basin Commission, but not before negotiating deals and trade-offs among the governments, economic sectors and political interests involved. This led to hard bargaining – in the corridors, on the bus to the hotel, in the hotel lobby, even around the table at the workshop dinner. And deals were reached, in which for example investment in irrigation efficiency and a new dam was agreed provided that flows were sufficient to sustain downstream fisheries and river navigation. When put to the Basin Commission to recommend processes for resolving remaining disputes, the Commission suggested several ways to increase benefits of basin cooperation using a flow regime, encouraging the parties to consider further how they could, for example, broaden the scope of energy options under negotiation, and address climate change adaptation in managing flows.

It was clear from the enthusiastic commitment of participants to this and other activities over the week that all share Glauco’s passion for rivers. Each left Foz do Iguaçu with an action plan for applying what they’d learned to the goal of sustainable development of river basins, in both large and small ways, according to the roles each plays in their projects and institutions. André Pol, of the Brazilian Ministry of Environment, for example, was adamant that “the time is now right for an environmental flows pilot in Brazil. We are going to talk with ANA, TNC and IUCN and others about an environmental flows partnership in the country, to support dialogue, capacity building and then a flows demonstration.” Itaipu’s Director for Cooperation, Nelton Friedrich, also expressed interest in working with GEF IW:LEARN to pursue learning exchanges with African basins where Portuguese is spoken.

Time spent getting to know one another also led to numerous proposals for exchanges and collaboration. Itaipú, IW:LEARN, IUCN and Fundacion Natura of Panama discovered a common interest in microwatershed planning and discussed how to promote wider application in Panama, the Plata basin and elsewhere. Zuleika Pinyon, Executive Director of Fundacion Natura, commented that “As a result of this workshop we will be able to bring lessons on community participation around Itaipú to the Panama Canal Zone. This will help us a lot.”

More information on environmental flows, as well as discussion forums and case studies, is available from the Environmental Flows Network ([www.eflownet.org](http://www.eflownet.org)). This has been set up recently by IUCN, TNC and a group of partners to promote experience sharing and peer-to-peer learning on environmental flows. The IUCN toolkit used at the workshop, titled *FLOW – The Essentials of Environmental Flows*, can be downloaded from <http://www.iucn.org/themes/wani/publications/publications.htm>.

Further information on the workshop and future events being planned by IUCN for river basin learning in IW:LEARN are available from Mark Smith at IUCN ([mark.smith@iucn.org](mailto:mark.smith@iucn.org)).