

## **Compendium on Relevant Practices - 2<sup>nd</sup> Stage**

### **Revised Final Report Benefit Sharing Issue**

- **Revenue sharing**
- **Development funds**
- **Equity sharing**
- **Property taxes**
- **Preferential electricity rates**

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## List of Acronyms

ANEEL	Agencia Nacional de Energia Eléctrica (Brazilian Electricity Regulatory Agency)
CBT	Columbia Basin Trust
CVS	Corporación Autónoma Regional del Sinú y del San Jorge
DDC	District Development Committee
ERDESU S.A.	Energía Renovable & Desarrollo Sustentable
FPG	Fujian Provincial Government
G&L	Glomma and Laagen
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
IUCN	International Union for the Conservation of Nature and Natural Resources, The World Conservation Union
JBNQA	James Bay and Northern Québec Agreement
LFCF	Lesotho Fund for Community Development
LHDA	Lesotho Highlands Development Authority
LHWC	Lesotho Highlands Water Commission
LHWP	Lesotho Highlands Water Project
NEA	Nepal Electricity Authority
NGO	Non Governmental Organisation
NVE	Niges Vassdrags- og Energidirektorat (Norwegian Water Resources and Energy Directorate)
PROHA	Proyecto Hidroamazónico
RCM	Regional County Municipality
SRRO	Shuikou Reservoir Resettlement Office
TCTA	Trans-Caledon Tunnel Authority
VDC	Village Development Committee

# Executive Summary

## Characterisation of the Benefit Sharing Issue

While the primary beneficiaries of dams usually live far away from the dam sites, other groups of people in the project-affected area may sustain most of the negative impacts of dams. In view of this, dam proponents, operators, and regulators need to also commit to support measures for development and welfare opportunities for local and regional communities that are negatively affected by the dam. One way to fulfil this need is to share part of the benefits generated by dam operation with these communities. In addition, in the case of dam-induced forced population displacement, benefit sharing mechanisms are generally considered as one of the most important means required for complementing cash compensation. Therefore, one of the key elements to be taken into account in compensation policies is the sharing of part of the benefits generated by dam operation with affected communities.

In addition, monetary benefit sharing mechanisms can be used as a way for a developer to establish a partnership with local populations, including project-affected populations (if any) or as a means to establish a long-term regional economic development fund. Monetary benefit sharing mechanisms can thus be implemented even in cases where there are no project-affected people. The interest of such mechanisms reside in their potential to support long-term beneficial partnerships between developers and concerned communities.

Benefit sharing mechanisms can be either non-monetary or monetary. The former type is generally included in compensation policies and include, for instance, access to irrigated land, employment generated by the project or improved access to markets and services. In addition, various monetary benefit sharing mechanisms have been developed and applied to dam projects, both in developed and developing countries. Monetary benefit sharing is based on the premise that dam projects may generate a significant economic rent that can be shared with project-affected populations. The following types of monetary benefit sharing mechanisms may be considered: a) revenue sharing; b) developments funds; c) equity sharing; d) taxes paid to regional or local authorities; and e) preferential electricity rates or water-related fees.

This report focuses on legal or policy frameworks of monetary benefit sharing mechanisms and corresponding examples of implementation. A separate report discusses international and national compensation policy frameworks and corresponding examples of implementation. These examples will include non-monetary benefit mechanisms that are generally extensively covered under compensation policy frameworks in the context of community and livelihood restoration and enhancement measures.

## Selection of Examples

Monetary benefit sharing mechanisms constitute for the most part relatively innovative approaches. Most compensation frameworks do not include such types of mechanisms and there is little literature available on this subject. The selection of examples for the benefit sharing issue thus used as a starting point a study on monetary benefit sharing from dam projects carried out in 2002 for the World Bank.

In addition, the search for potential sources of information included the following countries that have also adopted legislation on various types of monetary benefit sharing: Japan, Nepal, Philippines and Korea. The examples were also selected so as to cover all types of monetary benefit sharing mechanisms.

### Some Conclusions

Twelve examples were presented in the report to illustrate the objectives and types of benefit sharing mechanisms. The following conclusions can be drawn from these examples.

When the monetary benefit sharing framework is defined in a legislation, it often takes the form of transfers of part of the revenues from hydropower projects to municipalities or regional entities. This is the case of the Colombian, Brazilian and Nepalese legislations. These legislations do not directly address the project-affected people. However, these people may benefit from the infrastructures and services put in place with the funds received from the projects. This type of legislation can thus be considered as a positive step towards equitable sharing of benefits from hydropower development, provided sound mechanisms are implemented to manage the funds received by municipalities or regional entities. However, no comprehensive follow-up study concerning the examples selected could be found concerning opinions from involved stakeholders as well as on the use of those funds and how they benefited project-affected people.

The Chinese legislation also comprises a revenue transfer mechanism that takes the form of “Later Stage Support Funds” to resolve outstanding problems resulting from dam-induced population displacement. These funds are financed from power sales and managed by the Provincial Resettlement Bureaus. This legislation demonstrates the commitment of Chinese authorities to achieve full restoration of the livelihood of the resettled people. However, no follow-up studies that evaluate the performance of such funds could be found.

Another example of revenue transfer is the Paix des Braves Agreement between the Government of Québec and the Grand Council of the Crees in Canada. This agreement is also an interesting example of recognition of the rights of Indigenous communities to have a say in the management of natural resources on their ancestral lands.

The Norwegian legislation comprises a variety of mechanisms: revenue sharing, equity sharing, development funds, property taxes, preferential electricity rates. This legislation explicitly recognizes that project affected people, as part of the populations of municipalities in which water resources are exploited, must receive a share of the project benefits, over and above mitigation and compensation measures that are included in project design. However, such revenues represent a relatively small part of the budget of the municipal sector in Norway.

Two examples concern development funds related to dams that are built on shared river basins: the Columbia Basin Trust (CBT) and the Lesotho Fund for Community Development (LFCD). They provide the only examples of explicit measurement of the economic rent generated by dam projects. In each case, part of the rent was used

to finance a development fund. The CBT exemplifies several approaches that maximize the efficiency of such funds, e.g. the setting up of provisions that foster the active involvement of community organizations in the project-affected area. The LFCO encountered many problems that illustrate the importance of establishing and implementing sound institutional procedures to manage such funds.

Establishing partnership agreements between developers and local communities is probably the most innovative form of monetary benefit sharing. For the developer, a partnership provides an assurance of the local acceptance of the project, thereby reducing the level of risk and the cost of lengthy feasibility studies and authorization processes. For the local communities, it is a recognition of their entitlement to a share of the economic rent generated by the dam as well as of their rights to have a say in the management of local water resources. Four hydropower projects in Hubei, China, two Canadian projects (Minashtuk and Touloustouc) and the Jondachi hydroelectric project in Ecuador illustrate this type of mechanism. One determining factor of success for partnership agreements is a long term power purchase agreement that provide the necessary condition for the local community to invest.

Monetary benefit sharing mechanisms described in these examples are relatively new mechanisms. In a most instances, the framework has been implemented recently and outcomes have been only partially evaluated. They would all benefit from further studies, including interviews with concerned stakeholders, on the outcomes and results of the benefit sharing mechanisms implemented in the context of each project.

# 1. Introduction

The Dams and Development (DDP) programme is tasked with improving decision-making and management of dams and their alternatives, building on the core values and strategic priorities of the World Commission on Dams (WCD) and other relevant reference materials through promoting dialogue at national, regional and local level and producing non prescriptive practical tools.

On this ground, decision was taken to produce a Compendium of relevant examples. Stage 1 of the elaboration of the Compendium consisted in the elaboration of a checklist of key issues concerning planning of dams and their alternatives, a matrix analysis of their consideration by national and international frameworks and selection of a set of priority issues for further detailed analysis in further stages of elaboration of the Compendium. Stage 1 was almost completed with the consultation held at the 4<sup>th</sup> DDP forum meeting resulting in the following list of key priority issues:

- Benefit sharing
- Stakeholders participation
- Compliance: enforcement/mechanisms
- Compensation policy
- Outstanding social issues
- Social impact assessment
- International policy concerning shared river basins

In addition, upon the request of the Steering Committee, two more priority issues were added: Identification of options and Environmental management plan.

This report presents the results of a study on the identification, collection of information and compilation of examples of relevant practices concerning the integration into policy/normative frameworks and implementation of the benefit sharing key priority issue.

The report is structured as follows:

- Chapter 2 presents the methodology used for the assignment.
- Chapter 3 provides a characterisation of the benefit sharing issue.
- Chapter 4 presents the state of the art and of the practice regarding monetary benefit sharing mechanisms.
- Chapter 5 presents the examples that are proposed for the Compendium.
- Chapter 6 presents a brief discussion of the study results.

## **2. Methodology**

Since there are many links between the priority issues relating to compensation policy and to benefit sharing, the methodology to carry out the assignment first had to define as precisely as possible the subjects to be covered in the assignments relating to both issues. These links are defined in Section 2.1. This Chapter then presents what has been the focus of the search for potential sources of information and the selection process for dam examples.

### **2.1 Links with Priority Issue Relating with Compensation Policy**

The characterisation of the benefit sharing priority issue presented below emphasises the fact that one of the key elements to be taken into account in compensation policies is the sharing of part of the benefits generated by dam operation with affected communities.

In order to minimize potential overlapping between the priority issues relating to compensation policy and to benefit sharing, it was agreed, following the presentation of the work plans on the benefit sharing and the compensation policy issues, that the objectives of the assignments relating to both issues be spelled out as follows:

- For compensation policy: document relevant international and national compensation policy frameworks and corresponding examples of implementation. Such examples include non-monetary benefit mechanisms that are generally extensively covered under compensation policy frameworks in the context of community and livelihood restoration and enhancement measures.
- For benefit sharing: document relevant legal or policy frameworks of monetary benefit sharing mechanisms and corresponding examples of implementation.

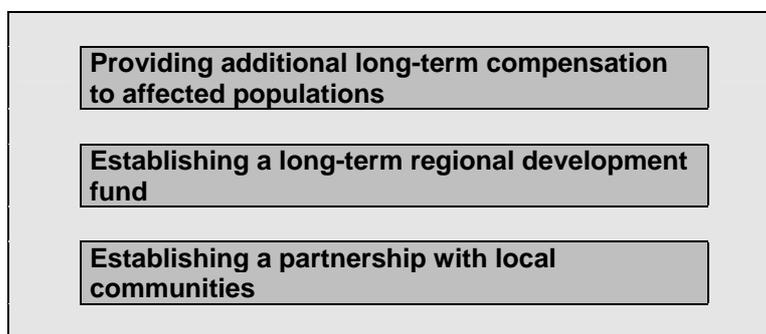
Such a division of work avoided repetition of examples. It also allowed for explicitly discussing monetary benefit sharing mechanisms that constitute for the most part relatively innovative approaches. Indeed, most compensation frameworks do not include such types of mechanisms and there is little literature available on this subject.

Some compensation policy and benefit sharing examples could refer to the same policy or legal framework. In such cases, the example provided under the Compensation Policy issue focused on the principles underlying the framework. The example provided under the benefit sharing issue focused on a specific type of monetary benefit sharing mechanism.

As further detailed in Section 3, it is important to note that monetary benefit sharing mechanisms are not only used to complement cash compensation and other measures conceived within the framework of a compensation policy. They can also be used as a means to establish a partnership with local populations, including project-affected populations (if any) or as a means to finance long-term regional economic development funds. Monetary benefit sharing mechanisms can thus be implemented even in cases where there are no project-affected people. The interest of such mechanisms reside in their potential to support long-term partnerships between

developers and concerned communities. The following figure summarizes the potential objectives of monetary benefit sharing mechanisms.

### Potential Objectives of Monetary Benefit Sharing Mechanisms



Monetary benefit sharing mechanisms can thus be defined as mechanisms that channel part or all the revenues and/or profits of a dam project to project-affected populations or to populations living in the vicinity of a dam development. The capacity of a developer to channel part of the revenues from a dam project to local populations depends on the existence or not of an economic rent generated by the project. Such mechanisms may pursue one or several of the following objectives: a) providing additional long-term compensation to affected populations; b) establishing long-term regional development funds; and c) establishing a partnership between developers and local communities based on sharing of the economic rent generated by the dam project.

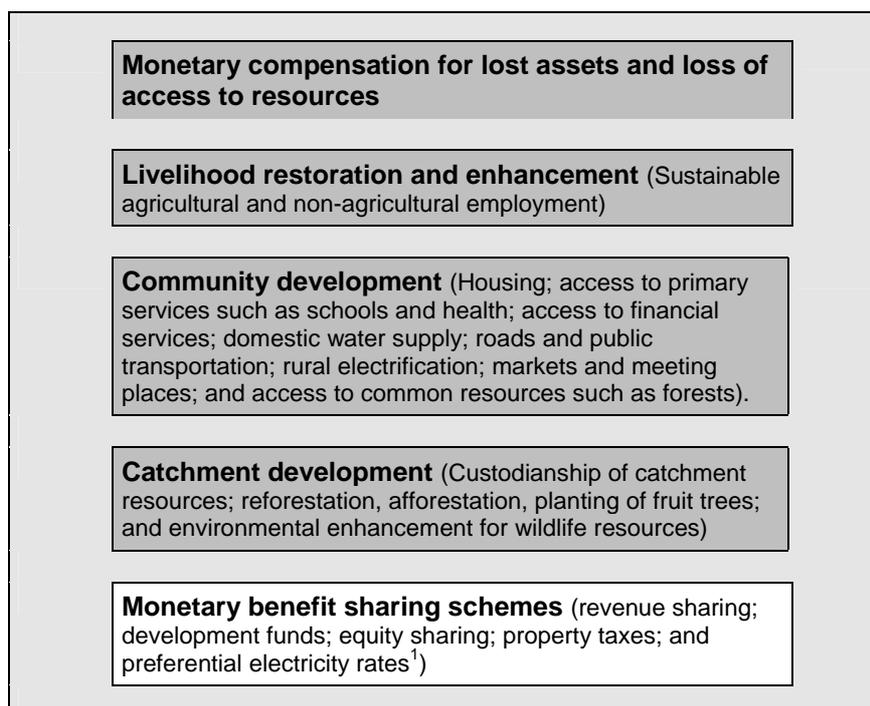
With respect to the first objective of monetary benefit sharing mechanisms defined above, the figure on the next page illustrates the main mechanisms to be considered within the general framework of Compensation Policy (shaded areas) as well as the links with monetary benefit sharing mechanisms which are covered under the Benefit Sharing Issue (non shaded area).

This report thus focuses on relevant legal or policy frameworks of monetary benefit sharing mechanisms and corresponding examples of implementation. A separate report discusses relevant international or national compensation policy frameworks and corresponding examples of implementation. Such examples will include non-monetary benefit sharing mechanisms that are generally extensively covered under compensation policy frameworks in the context of community and livelihood restoration and enhancement measures.

## 2.2 Focus of Search for Potential Sources of Information

Monetary benefit sharing mechanisms constitute for the most part relatively innovative approaches. Most compensation frameworks do not include such types of mechanisms and there is little literature available on this subject. Within the limited timeframe available to undertake the assignment (30 days), the search for potential sources of information thus built on the results of a study on monetary benefit sharing

## Main Mechanisms to be Considered within the General Framework of Compensation Policy and Links with Monetary Benefit Sharing Mechanisms



from dam projects carried out in 2002 for the World Bank<sup>2</sup>, by focusing on the following policy and legal frameworks already identified in this report:

- Colombian legislation on revenue transfers from hydropower projects.
- Brazilian legislation on revenue transfers from hydropower projects.
- Hydro-Québec approach on partnership with indigenous communities and with local communities (Canada).
- Columbia Basin Trust.
- Treaty between Lesotho and South Africa on Lesotho Highlands Water Project.
- Legislation relating to the energy and water resources sector in Norway.
- China legislation and guidelines on post resettlement development funds.
- Western region development program (China).

In addition, the search for potential sources of information included the following countries that have also adopted legislation on various types of monetary benefit sharing: Japan, Nepal, Philippines and Korea.

The assessment of potential sources of information contained in this report aimed at: a) identifying and describing relevant benefit sharing frameworks and b) describing up to 15 dam project examples to illustrate the implementation of each of the selected frameworks.

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<sup>1</sup> Types of monetary benefit sharing mechanisms are defined in Section 3.3.

<sup>2</sup> Egré, D., Roquet, V. and Durocher, C. 2002. *Benefit Sharing from Dam Project. Phase I: Desk Study. Report* prepared for Alessandro Palmieri, World Bank.

The resulting data base of references is presented in the Appendix to this report.

### 2.3 Selection Process for Relevant Dam Project Examples

The sequence of activities to select relevant examples was the following:

- 1) Assess the potential sources of information provided in Annex B to the Terms of Reference.
- 2) Assess which cases considered in the 2002 World Bank study on monetary benefit sharing could be used as relevant examples of monetary benefit sharing frameworks within the context of the current assignment.
- 3) Select additional relevant dam project examples on the basis of a search and assessment of information contained in the following sources: web sites, proceedings from international conferences, reference centres of national and international organisations, information collected from contact persons. This search focused on the following countries: Japan, Nepal, Philippines and Korea.
- 4) Selected examples would have to meet the following criteria: a) the framework is fully documented, b) the examples can be used as a model for application in other contexts based on local conditions and the emerging lessons from the example, and c) the selection of examples has to cover all types of monetary benefit sharing mechanisms that have been identified in the characterization of the issue.

The cases presented in the report thus represent relevant examples of monetary benefit sharing. If some of the cases were challenged by civil society organizations for reasons such as downstream impacts on fisheries, this does not affect in any way the relevance of monetary benefit sharing mechanisms presented in the report. When available in a given case, the assessment of outcomes of the monetary benefit sharing mechanism by civil society organizations is presented.

The following table presents the list of examples that have been identified on the basis of the above process.

<b>Objective of monetary benefit sharing mechanism</b>	<b>Type of monetary benefit sharing mechanism</b>	<b>Framework</b>	<b>Project</b>
Providing additional long-term compensation	Revenue transfers to local authorities	Brazilian legislation on revenue transfers from hydropower projects	Itaipu (1980s), Brazil
Other (watershed protection)	Revenue transfers to regional and local authorities	Colombian legislation on revenue transfers from hydropower projects	Urrá 1 (2000), Colombia
Establishing a partnership with local communities	Equity sharing	Proyecto Hidroamazónico (PROHA), Ecuador	Jondachi Hydroelectric Project, Ecuador (planning stage)

Providing additional long-term compensation Establishing a long-term regional development fund	Preferential electricity rates Revenue sharing Equity sharing Development fund Property taxes	Legislation relating to the energy and water resources sector in Norway	Glomma and Laagen River Basin Development (1970s) and Tokke Hydropower Project (1960), Norway
Providing additional long-term compensation	Revenue sharing Development fund	Columbia Basin Trust	Duncan (1968), Keenleyside (1969) and Mica (1975), Canada
Establishing a partnership with local communities	Equity sharing	Hydro-Québec approach on partnership with indigenous communities and with local communities (Canada)	Minashtuk (2000), Canada
Establishing a partnership with local communities	Revenue sharing Equity sharing	Hydro-Québec approach on partnership with indigenous communities and with local communities (Canada)	Toulnostouc Dam and three partial river diversions (2005), Canada
Establishing a partnership with local communities Providing additional long-term compensation Establishing a long-term regional development fund	Revenue sharing Development fund	Paix des Braves Agreement between Cree Indigenous communities and the Québec Government (Canada)	Eastmain-1 Dam (2007) and Eastmain-1-A and Rupert Diversion Project (2011), Canada
Providing additional long-term compensation Establishing a long-term regional development fund	Revenue sharing Development fund Preferential electricity rates	Chinese legislation on post resettlement and rehabilitation for hydropower projects	Shuikou (1996), China
Establishing a long-term regional development fund	Revenue sharing Equity sharing	Western region development program (China)	Hydropower Development in Poor Areas of Hubei (first unit commissioned in 2005), China
Providing additional long-term compensation	Revenue sharing	Nepalese legislation on revenue transfers from hydropower projects	Kali Gandaki hydropower project (2002), Nepal
Establishing a long-term regional development fund	Revenue sharing Development fund	Lesotho Fund for Community Development	Lesotho Highlands Water Project (2004), Lesotho and South Africa

As much as possible, the presentation of each example follows the outline provided in Annex A of the Terms of Reference. However, the following constraints were encountered in the preparation of most examples:

- Most of the documents that present a systematic evaluation of the outcomes of the implementation a framework have been prepared by the World Bank or the project developer. Although they are based on studies using recognized methods, they generally provide only the views of the World Bank or the project developer. Little documentation is available on the points of view of other stakeholders.
- Since most monetary benefit sharing mechanisms described in the examples are relatively new mechanisms, available information on outcomes generally do not cover all aspects. In a number of instances, the framework has been implemented recently and outcomes have been only partially evaluated, if at all.

As a result, several elements of the template in Annex A of the Terms of Reference proved to be difficult, if not impossible, to document in the context of the present assignment. Addressing these difficulties would require further studies on the outcomes and results of each example and include interviews with concerned stakeholders.

A number of examples that are presented in the report did not result in overall positive outcomes. However, useful lessons can be drawn from all frameworks described in the examples and from their implementation. In this respect, they can all be considered as examples of relevant practices. Considering the lack of systematic follow-up assessment of the implementation of monetary benefit sharing mechanisms, demonstrated examples of positive implementation would likely be very few.

## **3. Characterisation of the Benefit Sharing Issue**

### **3.1 Need for Benefit Sharing from Dam Projects**

One of the key points put forward by the World Commission of Dams (WCD) report<sup>3</sup> is that “dams have made an important and significant contribution to human development, and the benefits derived from them have been considerable.” These benefits are varied and include power generation, flood control, irrigation, industrial and domestic water supply, navigation as well as recreation. However, the WCD report also underlines that “in too many cases an unacceptable and often unnecessary price has been paid to secure those benefits, especially in social and environmental terms, by people displaced, by communities downstream, by taxpayers and by the natural environment.” Indeed, while the primary beneficiaries of dams usually live far away from the dam sites, other groups of people in the project-affected area may sustain most of the negative impacts of dams. For instance, power generation often benefits urban populations and industries located far away from the project-affected area. In other instances, water provided for irrigation may benefit small groups of farmers located downstream of the dam. In view of this, dam proponents, operators, and regulators need to also commit to support measures for development and welfare opportunities for local and regional communities that are negatively affected by the dam. One way to fulfil this need is to share part of the benefits generated by dam operation with these communities.

In addition, monetary benefit sharing mechanisms can be used as a way for a developer to establish a partnership with local populations, including project-affected populations (if any) or as a means to establish a long-term regional economic development fund. Monetary benefit sharing mechanisms can thus be implemented even in cases where there are no project-affected people. The interest of such mechanisms resides in their potential to support long-term beneficial partnerships between developers and concerned communities.

### **3.2 Objectives of Monetary Benefit Sharing Mechanisms**

Monetary benefit sharing is based on the premise that dam projects may generate a significant economic rent that can be shared with project-affected populations. Economic rent is the surplus return which exceeds the normal return on capital. Such a rent arises because the company is exploiting a natural resource whose development depends on site-specific hydraulic, topographical and geological conditions<sup>4</sup>.

Since natural resources are considered public goods, governments, in the name of the public, may thus try to “capture” the rent through royalties, fees, competitive auctions or other mechanisms and deliver it back to the public. This is common practice in the oil and gas, mining, forestry and fishing sectors. It is rare, however, in the hydroelectric power sector, where governments typically regulate tariffs in such a

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<sup>3</sup> World Commission on Dams. 2000. *Dams and Development. A New Framework for Decision-Making*. Earthscan Publications Ltd, London and Sterling, VA.

<sup>4</sup> Rothman, Mitchell. 2000. *Measuring and Apportioning Rents from Hydroelectric Power Developments*. World Bank Discussion paper No. 419.

manner that the resulting rent flows to electricity consumers in the form of lower tariffs. Those who consume more electricity will get more of the rent and, depending on conditions in the exported goods market, some of the rent can even go to foreign customers. The situation is similar in the case of other water uses made possible through dams. Irrigation fees, water fees or navigation fees generally reflect at best the actual cost of the dam. In the case of flood control, populations benefiting from reservoir storage capacity generally do not pay for this benefit.

However, ethical considerations may justify that part of the rents be channelled to project-affected populations. Indeed, in many cases, project-affected people sacrifice their access to and use of local natural resources that contribute to project development. In addition, the sharing of economic rent can also be used to finance long-term regional economic development funds and to establish long-term partnerships between developers and concerned communities. These three objectives are detailed below.

#### 1) Providing additional long-term compensation to project-affected populations

In the case of dam-induced forced population displacement – which is recognized as one of the most significant adverse socio-economic effects of dam projects –, research shows that compensation for lost assets is not alone sufficient to secure the productive and enduring reestablishment of those displaced. As a result, since the early 1980s, international standards respecting resettlement and development of persons affected by dam projects have stressed the need both for a) equitable compensation of all affected parties and b) rebuilding affected communities and supporting the development of affected parties' livelihoods. Benefit sharing mechanisms are generally considered as one of the most important means required for complementing cash compensation and other measures conceived within the framework of a compensation policy. Therefore, one of the key elements to be taken into account in compensation policies is the sharing of part of the benefits generated by dam operation with affected communities, as recommended by the World Commission on Dams<sup>1</sup>, the International Energy Agency's Guidelines on Hydropower and the Environment<sup>5</sup> and the International Hydropower Association's Sustainability Guidelines<sup>6</sup>.

Another reason for implementing benefit sharing mechanisms, in addition to mitigation and compensation measures for environmental and social impacts of dams, is that existing guidelines fail to capture the full social costs of these impacts. "Proper socio-economic reestablishment requires more than paying the fair market value of the condemned land" ... "the stream of benefits created by the project should also be tapped to provide direct benefits and resources for resettlers"<sup>7</sup>.

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<sup>5</sup> International Energy Agency (IEA). 2000. Hydropower Agreement. Annex III/5: *Hydropower and the Environment: Present Context and Guidelines for Future Action*, Vol. II: Main report, Vol. III Appendices.

<sup>6</sup> International Hydropower Association. 2004. *Sustainability Guidelines*.

<sup>7</sup> Van Wiclin III, Warren W. 1999. Sharing Project Benefits to Improve Resettlers' Livelihoods. In *The Economics of Involuntary Resettlement. Questions and Challenges* edited by Michael Cernea. World Bank.

This need to provide additional compensation to project-affected people is recognized in the legislation on revenue transfers from hydropower projects in countries such as Norway, Nepal and Brazil.

## 2) Establishing long-term regional economic development funds

In poorer regions that have untapped water resources, dam projects can be planned as part of a regional economic development plan. Such a plan can take into account all resource potentials in the region as well as opportunities created by the reservoir and by access roads built for the construction of the dam and power plant. These new opportunities may include reservoir fisheries, irrigated agriculture, better access to markets or improved navigation. Part of the funding to implement the plan may be provided by channelling a portion of the benefits from the dam project to local and regional communities. This approach is illustrated by the Lesotho Fund for Community Development and the Hydropower Development in Poor Areas of Hubei.

The establishment of development funds can also be set up to provide additional long-term compensation to project-affected populations, as illustrated by the Chinese legislation on Post Resettlement and Rehabilitation for Hydropower Projects..

## 3) Establishing a partnership between developers and local communities

Establishing partnership agreements between developers and local communities is probably the most innovative form of monetary benefit sharing. Partnership agreements can take various forms depending on the development priorities of local communities, such as part or full community ownership of the dam project or community development funds. For the developer, a partnership provides an assurance of the local acceptance of the project, thereby reducing the level of risk and the cost of lengthy feasibility studies and authorization processes. For the local communities, it is a recognition of their entitlement to a share of the economic rent generated by the dam as well as a say in the management of local water resources. Such mechanisms provide: a) a source of funding over the long term; b) enable local and regional entities to set their own priorities and to minimise their dependency towards the developer and the State; and c) facilitate adaptive management.

Examples of partnership agreements in this report include Hydro-Québec approach on partnership with indigenous communities and with local communities and the Proyecto Hidroamazónico (PROHA) in Ecuador.

### **3.3 Types of Benefit Sharing Mechanisms**

Various monetary benefit sharing mechanisms have been developed and applied to dam projects, both in developed and developing countries. Five types of monetary benefit sharing mechanisms may be considered:

- Revenue sharing: because exact measurement of the economic rent from dam projects is difficult, revenue sharing through taxes on revenues or royalty regimes have often been used to attempt to capture some of the rent, without explicitly measuring it. Such mechanisms may be the result of negotiations between local or regional authorities and the promoter or may be defined in the legislation. In the

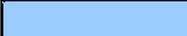
latter case, the percentages of revenues which must be transferred to regional or local beneficiaries and the destination of the proceeds are generally specified.

- Development funds: developments funds financed from power sales, water charges, etc. may be established to provide seed money for fostering economic development in the project-affected area.
- Equity sharing or full ownership: a variety of mechanisms may allow local or regional authorities to partly or fully own a dam project. Local authorities thus share the risks of the venture but also its profits, if any. Moreover, they may in certain cases gain a degree of control over the design and operation of the project.
- Taxes paid to regional or local authorities: two main types of taxes paid to regional and local authorities can be considered. In some countries, the State allows local or regional authorities to directly tax dam owners on the dam's property value or other basis. Taxes to be paid to regional and local authorities can also be defined in State legislation, sometimes as a percentage of project sales or net income. In the latter case, this mechanism is similar to revenue sharing.
- Preferential electricity rates or other water-related fees: this mechanism is a form of revenue sharing since it results in less revenues for the dam owner and in avoided costs for beneficiaries.

The table on the next page presents the links between the examples used in this report and types of monetary benefit sharing mechanisms. The table highlights the type of mechanism addressed best in a corresponding example.

## Links between Examples and Types of Monetary Benefit Sharing Mechanisms

Framework	Dam Project	Revenue Sharing	Development Funds	Equity Sharing	Property Taxes	Preferential Electricity Rates
Legislation on Revenue Transfers (Brazil)	Itaipu (1980s)					
Legislation on Revenue Transfers (Colombia)	Urrá 1 (2000)					
PROHA (Ecuador)	Jondachi (Planning stage)					
Legislation on Energy and Water Resources (Norway)	Glomma and Laagen (1970s), Tokke (1960)	Variety of mechanisms: license fees, tax on profit, etc.				Delivery of part of electricity production to local authorities at cost
Columbia Basin Trust (Canada)	Duncan (1968), Keenleyside 1969 and Mica (1975)		Explicit measurement of economic rent. Involvement of community organisations.			
Hydro-Québec Approach on Partnerships (Canada)	Minashtuk (2000)			Local community is majority shareholder. Long term power purchasing agreement.		
Hydro-Québec Approach on Partnerships (Canada)	Toulnostouc (2005)					
Paix des Braves Agreement (Québec, Canada)	Eastmain-1, Eatmain-1A and Rupert Diversion (2011)					
Post Resettlement Development Funds (China)	Shuikou (1996)		Legislation enacted since 1981			
Western Region Development Program (China)	Dongping, Najitan, Songshuling and Xiakou (Hubei) (First unit: 2005)					
Legislation on Revenue Transfers (Nepal)	Kali Gandaki (2002)					
Lesotho Fund for Community Development	Lesotho Highlands Water Project (2004)					

 Benefit Sharing Mechanism Applies

 Most Relevant Illustration of Benefit Sharing Mechanism

## 4. State of the Art and of the Practice

The characterisation of the benefit sharing issue and the examples used to illustrate its main elements suggest that the performance of monetary benefit sharing mechanisms largely depends upon the way these mechanisms are conceived and implemented. In addition, in the case of mechanisms defined in legislation, such as revenue transfers from hydropower projects through taxes on revenues or royalty regimes, benefit distribution has clear political dimensions and the role of the State is crucial. The following elements, which are further described in the following sections, have to be considered when designing and implementing monetary benefit sharing mechanisms<sup>8</sup>:

- Existence of an economic rent and financial constraints.
- Reconciling the goals of stakeholders.
- Ensuring the efficiency of benefits redistribution.
- Ensuring the involvement of local communities.
- Ensuring the accountability of agencies entrusted with benefits redistribution.

### 4.1 Existence of an Economic Rent and Financial Constraints

The economic rent from dam projects is difficult to measure and monetary benefit sharing mechanisms generally capture some of the rent without explicitly measuring it. However, the prerequisite to benefit sharing is the very existence of such a rent. Ideally, this rent should be measured so as to determine what could be shared with the project-affected population. However, even if the existence of an economic rent can be demonstrated and measured, it does not mean that monetary flows from dam operation allow for benefit redistribution independent of other circumstances. This may occur in situations such as regulated electricity rates that do not cover the actual supply cost of generating power; benefit transfers based on a percentage of revenues that result in financial losses for the dam owner; irrigation fees that do not recover capital cost.

Government subsidies may be used to balance financial flows when they can be justified on the basis of an economic analysis, for instance when it can be demonstrated that flood control benefits (which do not accrue to the dam owner but are real for the society and can be major) exceed dam capital and operation costs. The sum of profits accruing to the dam owner, of benefits accruing to local communities and of taxes on profit or water-use fees collected by the government, should not exceed the economic rent.

In practice, only two examples in this report, the Lesotho Fund for Community Development and the Columbia Basin Trust, are based on an explicit measurement of the economic rent. Revenue transfers through taxes on revenue or royalty regimes implicitly or explicitly recognize the existence of an economic rent. For instance, the

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<sup>8</sup> The description of these elements is generally drawn from Chapter 6 of the following report: Egré, D., Roquet, V. and Durocher, C. 2002. *Benefit Sharing from Dam Project. Phase 1: Desk Study. Report* prepared for Alessandro Palmieri, World Bank.

rent tax in Norway is justified by assuming the existence of an economic rent without explicitly measuring it. Equity sharing, in turn, such as in the case of the Minastuk Project, does not require the explicit measurement of the economic rent but the design of this mechanism is based on the assumption that the project will generate profits that reflect at least part of it.

## 4.2 Reconciling the Goals of Stakeholders

Defining monetary benefit sharing mechanisms is a complex task that involves reconciling interests, goals and values of the following four categories of stakeholders:

- 1) *Developers*: developers bring capital as well as technical and managerial expertise to build and operate the project. Hydroelectric projects require a high level of investment. They require a long lead time before entering into operation and their period of use typically extends over several decades (50 to 100 years). Payback periods are thus much longer than for most other electricity generation projects. Under such conditions, any mechanism such as equity sharing that may lower the risk of social, institutional and political unrest in the long term will be highly valued by developers. Developers will also favour reaching a consensus with interested parties over project design and project benefits early on in the planning process so as to avoid unnecessary expenditures and efforts.
- 2) *Project beneficiaries*: dam projects are often multi-purpose projects that generate significant benefits over and beyond issues related to monetary benefit sharing with affected populations. Most project beneficiaries are generally located far away from the dam site and expect to benefit from the services provided by the dam at the lowest price or fee possible, or even for free. Most beneficiaries have little or no knowledge of local and regional impacts related to dam construction and operation.
- 3) *Local communities, project-displaced and other affected people*: dam construction and operation affects to various degrees the uses of water resources and other resources as well as ways-of-life of regional and local populations. In addition, project-affected people form heterogeneous groups with regards to occupations, revenues, values, education, social organisation, etc. Several subcategories can thus be generally defined in relation to expectations and issues raised by a dam project. Local communities can claim entitlements to a share of project benefits as they contribute to project development by sacrificing – voluntarily or not – the access to or use of natural resources in the project-affected area. As Michael Cernea<sup>9</sup> pointed out: “those who give their lands to the new project are in fact “investors of equity” in those new projects. As investors they are entitled to a share of the benefits.”
- 4) *The State*: many institutions are concerned by dam projects, e.g., land use and resource management, manpower, health or economic development agencies. Furthermore, the State has the responsibility to establish legal guidelines for the use of natural resources and, when required, for solving dilemmas raised by projects that exploit such resources.

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<sup>9</sup> Cernea, Michael M.. 2002. “For a New Economics of Resettlement: A Sociological Critique of the Compensation Principle”, in Michael Cernea and Ravi Kanbur. *An Exchange on the Compensation Principle in Resettlement*. WP 202-33. Ithaca: Cornell University. Department of Applied Economics.

The equity sharing type of monetary benefit sharing mechanism used within the framework of a partnership agreement, such as the Minastuk Project and the Jondachi Project, is based on the principle of reconciling the goals of the developer and the local communities. The success of such mechanisms depends on the early involvement of local communities from the planning of the project. In addition, replicating this type of arrangement in other contexts requires that the local community benefit from a long-term power purchasing agreement that enables to assume the financial risks involved. All other types of monetary benefit sharing mechanisms are largely defined by the State itself which generally specify the destination of the funds that are transferred to local and/or regional authorities.

### **4.3 Ensuring the Efficiency of Benefits Redistribution**

Especially in the case of legislation establishing revenue sharing mechanisms through taxes or royalties, the process used to transfer revenues to project-affected populations should contain steps, provisions and safeguards to ensure that the goals of the mechanism are achieved, especially in the case of mechanisms aiming at providing additional long-term compensation to affected populations. In the first place, the goals should be clearly spelled out. Possible uses of the funds, in relation to the goals, should be defined. Separate budgets may be established for each category of uses. Local community governments, which are sometimes ill equipped to manage large sums of money and complex procedures, should be assisted to strengthen their institutional capacity.

In practice, a number of examples of legislation on revenue transfers or development funds presented in this report, such as the Brazilian legislation or the Lesotho Fund for Community Development, do not ensure that those affected by dams actually benefit from transfer payments because one or several of the conditions described above are not met. The Columbia Basin Trust, however, exemplifies several approaches that maximize the efficiency of monetary benefit sharing mechanisms, in particular the funding of activities covering a wide array of economic, environmental and social objectives, all contributing to sustainable development in the project-affected area. The efficiency of monetary benefit sharing mechanisms, other than equity sharing, generally depends on the existence of a strong and sophisticated public administration system.

### **4.4 Ensuring the Involvement of Local Communities**

The project-affected population should be meaningfully involved in defining the provisions of the benefit-sharing mechanism and these provisions should be viewed as fair by those affected. The project-affected population is indeed best placed to decide what constitutes an improvement in their quality of life and also has a first-hand knowledge of local and regional potentials and constraints. A benefit sharing mechanism should thus allow for the involvement of concerned populations in the design of the benefit sharing mechanism and the use of their share of the benefits received from the dam project. Partnership agreements that gain the support of all stakeholders involved, such as in the case of the Jondachi Project, illustrate the meaningful involvement of local communities.

#### **4.5 Ensuring the Accountability of Agencies Entrusted with Benefits Redistribution**

Transfers of money to local communities may represent very important sums and raise the concern that they may not be used in the manner intended by an agreement or by relevant legislation. They also may involve risks of embezzlement and corruption. The accountability of implementing agencies entrusted with the redistribution of benefits is thus a basic requirement. A transparent process, involving all stakeholders and disclosing publicly how benefits are invested as well independent audits, would provide greater assurances that the proceeds are effectively spent on projects that truly benefit project-affected communities. The information collected for the examples did not enable to evaluate this crucial element which should be examined in a subsequent study.

## 5. Examples Proposed for the Compendium

The following examples are presented below:

- Brazilian legislation on revenue transfers from the power sector to the Federal government, States and Municipalities: the Itaipu Project
- Colombian legislation on revenue transfers from the power sector to regional environmental agencies and municipalities: The Urrá 1 Project
- Proyecto Hidroamazónico (PROHA): the Jondachi Hydroelectric Project
- Norwegian legislation relating to taxes and license fees: the Glomma and Laagen Basin Development and the Tokke Project
- Columbia Basin Trust: the Duncan, Keenleyside and Mica dams
- Hydro-Québec's approach on partnership with aboriginal communities: The Minashtuk Project
- Hydro-Québec's approach on partnership with aboriginal communities: the Touloustouc Project
- Paix des Braves agreement between the Government of Québec and the Grand Council of the Crees: the Eastmain-1 Project and the Eastmain-1-A and Rupert Diversion Project
- Chinese legislation on post resettlement and rehabilitation for hydropower projects: the Shuikou Project
- Hubei Hydropower Development in poor areas
- Nepalese legislation on the payment of royalties to districts and villages: the Kali Gandaki Hydropower Project
- Lesotho Fund for Community Development

Among the 12 examples, five are located in Canada, one in Norway, two in China, one in Nepal and one in Lesotho.

Five examples illustrate mechanisms used to provide additional compensation to project-affected populations (four of them are located in developing countries). Four examples illustrate regional development funds (two of them are located in developing countries). Partnership agreements are illustrated by three among the four Canadian examples as well as by the Ecuadorian example

## **5.1 BRAZILIAN LEGISLATION ON REVENUE TRANSFERS FROM THE POWER SECTOR TO THE FEDERAL GOVERNMENT, STATES AND MUNICIPALITIES: THE ITAIPU PROJECT**

### ***Identification of the Example***

#### Key issue addressed

Revenue transfers from the power sector to central government, regional and local authorities

#### Integration

- Itaipu Treaty (1973)
- Constitution of the Federal Republic of Brazil (1988)
- Law 7990 (1989)
- Law 8001 (1990)
- Law 9433 (1997)
- Law 9984 (2000)

#### Implementation

- Itaipu Binational Hydroelectric Power Plant (Brazil and Paraguay)
- Project developer: Itaipu Binacional, co-owned by ELETROBRÁS (Brazil) and Administración Nacional de Electricidad (Paraguay)
- Start of construction: 1975
- First unit commissioned in 1984
- Total capacity: 14,000 MW

#### Stage regarding the project life cycle

Project operation

### ***Description of the Framework***<sup>10</sup>

#### Country institutional set up

The Federative Republic of Brazil is a presidential democracy which has been governed by a civil regime since 1985. The legislative branch of the State, the National Congress, is composed of the Federal Senate and of the Chamber of Deputies. Brazil is composed of 26 States and one federal district. The Brazilian Constitution of 1988 grants broad power to the federal government but provinces have a certain amount of autonomy concerning economic and energy issues. Brazil is the

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<sup>10</sup> Description of the framework is generally drawn from Ventura Filho (1999). It has been updated with information from Gomide (2004). It also includes comments made by Prof. Carlos B. Vainer, Universidade Federal do Rio de Janeiro

most populous country in South America and the most important economy of the continent.

The Brazilian energy sector has been vastly modified in the 1990s. In 1990, a privatisation programme was put in place, followed in 1995 by a law on public services, softening the conditions for entry to the electricity market and guaranteeing free access to the distribution and transport networks. In 2000, the Brazilian Register of Large Dams had 823 entries including 293 whose main purpose was power generation (Cassio, 2000).

The total hydroelectric power potential of the Paraná river and its upstream tributaries, including Itaipu, amounts to approximately 40,000 MW. The first feasibility studies to develop this potential were carried out in 1940s. However, an agreement between Brazil and Paraguay was required to allow for more complete and detailed studies.

Following intensive negotiations, the Act of Yguazu was signed on June 22, 1966 by the ministers of Foreign Affairs of both countries, whereby they:

- (i) declared the determination of their respective governments to study and evaluate the hydraulic resources of the Paraná river, from and including the Salto del Guairá or Sete Quedas to the mouth of the Yguazu river, and
- (ii) set forth, among other provisions, the guideline that the power produced would be equally divided between both countries, each being granted the preferential right to acquire, at fair prices, any quantity of power not utilized by the other for its own consumption.

The Itaipu Treaty, signed on April 26, 1973, set forth guidelines for the control and development of the binational hydraulic resources and the implementation of the Itaipu project. The Treaty reiterated the right of each of the two countries to purchase the power not utilized by the other and provided for the creation of a binational entity, Itaipu Binacional, to construct and operate the power plant as its owner. This binational entity was formally constituted on May 17, 1974 and is co-owned by both countries which participate, in equal proportions, in the capital of the enterprise through Centrais Elétricas Brasileiras S.A. (ELETROBRÁS) of Brazil and Administración Nacional de Electricidad (Paraguay)

The Treaty also included the obligation for Itaipu Binacional to pay royalties to the governments of Brazil and Paraguay, in equal proportions, for the exploitation of the hydraulic resources.

#### Brazilian legislation on royalty payment

In Brazil, an obligation for electric utilities to pay a financial compensation for the exploitation of hydraulic resources was subsequently created and regulated under the legislation described below. This legal framework has neither affected the provisions of the Itaipu Treaty nor altered in any way Itaipu Binacional's obligations, but it has set limits on the discretion of the Brazilian government to dispose of its share of the royalties paid by Itaipu Binacional and it has specified how such royalties should be apportioned by the Brazilian government.

The *Constitution of the Federal Republic of Brazil* of 1988 warrants that the States, the Federal District, Federal administrations and municipalities participate in the results of exploitation of hydraulic resources for the purpose of generation of electric power. The same applies to petroleum, gas and mining activities.<sup>11</sup>

Under *Law 7990* (December 28, 1989) and *Law 8001* (March 13, 1990), a financial compensation for the use of water resources must be paid by companies authorized to produce hydroelectric power which operate plant with a capacity larger than 10 MW. Under *Law 8001*, the amounts collected are distributed as follows:

- 45% to the States,
- 45% to the Municipalities,
- 8% to the Federal Electricity Regulatory Agency (ANEEL), and
- 2% to the Ministry of Science and Technology.

Municipalities receive their royalties as a proportion of the land area lost to impoundment. The legislation includes no reference to downstream impacts.

Further changes in the use of the proceeds have been brought by *Law 9433* (1997) which outlines the national water resources policies and guidelines and introduces the concept of payment for water use. In addition, in 2000, *Law 9984* created the National Water Regulatory Agency and increased from 6% to 6.75% of the revenues (based on a reference tariff) the amount to be paid by utilities, the additional 0.75% being the payment for water use. The latter amount is paid to the Ministry of Environment to support the implementation of the National Policy on water resources. The amount corresponding to 6% of the revenues is distributed as follows:

- 45% to the States,
- 45% to the Municipalities,
- 10% to the Federal Government (30% for electricity services supervisory activities, 30% for National Resources Secretary and 40% for the National Fund for Science and Technology).

It is important to note that the basis for calculating the amount of royalties paid by Itaipu Binacional is defined in the Itaipu Treaty and is different from the basis used for all other hydroelectric plants in Brazil. The latter basis is defined in the Decree 3739 of 2001.

#### Organisational set up

The Agencia Nacional de Energia Elétrica (Brazilian Electricity Regulatory Agency-ANEEL) manages the collection of this fee and the allocation of the funds among the Federal government as well as to States and municipalities affected by reservoirs.

#### Implementation history

No information was found on the implementation history of the Brazilian legislation on royalty payment.

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<sup>11</sup> Constituição da República Federativa do Brasil, Título III, Capítulo II, Artigo 20.

## ***Description of the Example***

### Project description

Itaipu is located on the Paraná river, in the stretch forming the frontier between Brazil and Paraguay, 14 km upstream from the international bridge which links the Brazilian city of Foz do Iguacu to the Paraguayan city of Ciudad del Este. Itaipu is the largest hydropower plant in the world, with 14,000 MW of installed capacity. The output from this giant power plant (a record 93,400 GWh in 2000) satisfies most of Paraguay's electricity needs, and about 24% of those of Brazil. Construction of the Project began in 1975 and the first 700 MW unit was commissioned in 1984. Itaipu is operated as a run-of-the-river power plant. The surface area of its reservoir is 1350 km<sup>2</sup>. The main dam is 612 m long and its maximum height is 196 m.

The power assigned to Paraguay is generated at 50 Hz. The surplus power not absorbed by the Paraguayan market is transmitted to Brazil through a direct current transmission system at  $\pm 600$  kV. The power assigned to Brazil is generated at 60 Hz and is transmitted to the purchasing utilities through an alternating current transmission system at 750 kV.

### Implementation of the issue

The amount of royalties paid by Itaipu Nacional in US\$ is kept constant, taking into account the inflation of this currency. In 2004, it was based on a rate of US\$ 1.99/MWh. Between 1984 and 2023, the total amount of royalties paid to the Governments of Paraguay and Brazil will be approximately US\$ 11.3 billion (Ventura Filho, 1999).

For Paraguay, 100% of the royalties are paid to the National Treasury, which then redistributes this income according to government priorities. In Brazil, the royalties are distributed among its beneficiaries as established by the legislation discussed above (Ventura Filho, 1999):

- Federal Government (10%),
- State of Paraná (38,06%) and State of Mato Grosso do Sul (0.76%) that have been affected by the Itaipu reservoir,
- States affected by upstream reservoirs (6.29%),
- Municipalities affected by the Itaipu reservoir (38.25%),
- Municipalities affected by upstream reservoirs (6.64%).

Existing legislation defines rules that govern the use of royalty revenues. For instance, Article 8 of *Law 7990* prohibits the use of such revenues for the payment of debt or of permanent staff. Royalty transfers to the Ministry of Environment must be used for the implementation of the National Policy of Hydro Resources, the National System of Management of Hydro resources and the management of the national Hydro-Meteorological System.

## Outcomes

Royalties constitute an important source of revenues for the municipalities that have been affected by the Itaipu reservoir, averaging 51% of their total revenues in 1998 (Ventura Filho, 1999). Among the 16 municipalities, six of them depend upon royalties for over 75% of their total income. For instance, the Municipality of Itaipulândia lost about half of its territory to the reservoir, but it received an average per capita royalty income equivalent to some US\$ 2000 in 1998 (Ventura Filho, 1999). No information could be found on the use of the royalty revenues by the municipalities.

It must be noted that, in addition to these royalties, Itaipu Binacional has developed its own large scale environmental and social development programs. They concentrate on activities such as reforestation, public health, reservoir fisheries, biodiversity conservation, and environmental monitoring activities. These programs also constitute a source of economic activity for the neighbouring communities. Itaipu also attracts a large number of tourists (some 500,000 visitors per year), which has increased business opportunities and generated local employment.

## Assessment of outcomes by involved stakeholders

According to Ventura Filho (1999), from Itaipu Binacional, “the Itaipu Hydroelectric Power Plant ... has played a decisive role in the progress and well-being of the affected communities through the multiple uses of the reservoir and, in particular, the payment of royalties. The benefits conferred on the local communities are, by far, greater than those that might have been obtained from other activities in the flooded area of the reservoir.”

No other assessment of outcomes by involved stakeholders could be identified in the available literature

## **Overall Conclusions**

The Brazilian mechanism of redistributing part of the royalties levied on power production to the affected municipalities is a simple and effective way of ensuring that the administrations most affected by the project also receive most of the royalties: 45% in this case. This ensures a continual flow of money, over the lifetime of the project, well beyond what would typically be the revenues of municipalities without the hydropower project. The objective of transferring benefits to affected municipalities is thus achieved quite efficiently. The payment of royalties over the lifetime of the infrastructure, in this case certainly several generations (50 to 100 years of production), ensures the economic sustainability of the concerned communities. However, as mentioned above, no information could be found on the use of the royalty revenues by the municipalities, in particular on the capacity of this mechanism to reach the needs of project-affected people.

There are possibly several limitations to this approach:

- The legislation is designed to provide revenues to partly impounded municipalities. However, residents of some municipalities may be affected, even

though their land is not impounded. In addition, part of the people who have been displaced by reservoir impoundment are no longer living in the municipalities that receive royalty transfers.

- The legislation does not address communities affected by downstream impacts nor indigenous communities.
- Transfers of money to municipal institutions are effective if the municipal governments and the local population have the political and institutional capacity to properly manage such a resource with the active involvement of community organisations.

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## **5.2 COLOMBIAN LEGISLATION ON REVENUE TRANSFERS FROM THE POWER SECTOR TO REGIONAL ENVIRONMENTAL AGENCIES AND MUNICIPALITIES: THE URRÁ 1 PROJECT**

### ***Identification of the Example***

#### Key issue addressed

Revenue transfers from the power sector to regional and local authorities

#### Integration

Colombian legislation on the management of the environment and renewable resources in Colombia and on revenue transfers from the Electricity Sector to regional environmental agencies and municipalities (Law 99 of 1993 and Decree 1933 of 1994).

#### Implementation

- Urrá 1 hydroelectric project, Colombia
- Project owner: URRÁ S.A
- Construction period: 1994-2000

#### Stage regarding the project life cycle

Project operation

### ***Description of the Framework***

#### Country institutional set up

The Republic of Colombia is a presidential democracy. The country is divided in 32 departments and one capital district. The country is faced with internal conflict between insurgent groups and illegal paramilitary groups since about 40 years but there is an ongoing peace process since 2002.

#### Law 99: revenue transfers from the power sector to regional and local authorities

Several provisions of Law 99, promulgated in 1993 by the Colombian Government, concerns revenue transfers from power plants to Law 99. In particular, Article 45 specifies that, for all new power generation plants of more than 10 MW installed capacity built in Colombia, power producers must transfer part of project revenues to regional environmental authorities and concerned municipalities. Decree 1933 promulgated in 1994 specifies the percentages and destination of such transfers.

For hydroelectric plants, 3% of project revenues must be transferred to the regional environmental agencies that have jurisdiction in the region where the project is located. The amounts must be used for the protection of the environment in the

watershed upstream of the dam and in the area of influence of the project, in accordance with a watershed management plan (called Plan de Ordenación y Manejo de la Cuenca Aportante or Pomca).

Another 1.5% of project revenues must be transferred to the municipalities bordering on the reservoir and 1.5% of project revenues must be devolved to the municipalities located in the watershed upstream of the dam. These amounts must be used for infrastructure projects that have been identified in municipal development plans. Water and sewage treatment projects as well as liquid and solid residue disposal projects must be prioritized.

In the case of thermal plants, 2.5% of project revenue transfers are transferred to the regional environmental agencies that have jurisdiction in the region where the project is located and 1.5% to the municipality where the plant is located.

National Law 344, promulgated in 1996, which created the Fondo de Compensación Ambiental (Environmental Compensation Fund), modified the destination of transfers of project revenues: this Fund now receives 20% of revenue transfers from the power sector. The Fund helps finance environmental studies and measures carried out by regional environmental agencies.

#### Organisational set up

No information is directly available on the organisational set up used for implementation, enforcement and monitoring of Law 99

#### Implementation History of the Framework

Prior to the promulgation of Law 99 in 1993, environmental management in Colombia was characterized by severely limited success in controlling environmental and resource degradation (Ramirez and Cubillos, 1995). In particular, together with the scattering of authority for environmental management, the definition of policies was too centralized and there was little involvement of local communities. In addition, there were budgetary constraints, which were reflected in personnel and technical limitations (low salaries and technical skills).

With the 1991 Constitution and National Law 99, environmental management was completely reorganized. Some of the achievements related to this reform are:

- Establishment of the Ministry of Environment as the head of environmental management in Colombia with increasing political power and influence.
- Creation and consolidation of regional environmental agencies in charge of environmental management in their respective regions (Corporaciones Autónomas Regionales).
- Decentralization of environmental management with more presence of regional concerns and local involvement in the definition and implementation of environmental policies.

As described above, Law 99 also defined new sources of income for environmental management coming from revenue transfers from the power sector to regional and

local authorities. Such revenue transfers have been implemented since the promulgation of Law 99 in 1993.

### ***Description of the Example***

#### Project description

The Urrá 1 hydroelectric project is located in the north-western part of Colombia on the 350 km long Sinú River which flows into the Caribbean Sea. Its installed capacity is 340 MW and its reservoir area is 7400 hectares. Construction began in 1994 and its four units were commissioned in 2000.

The construction of the civil works as well as the impoundment and protection of the reservoir required the acquisition of 18 000 hectares of land inhabited by some 7 300 people. Land in the upstream Sinú valley has been used by indigenous people since the pre-Colombian era and has been occupied by settlers since the 1950s. This valley can be characterized as an economically backward area with almost no government presence, subsistence-level agriculture, extreme poverty and high levels of ethnic, social and political conflicts.

#### Implementation

In the case of the Urrá 1 Project, the Corporación Autónoma Regional del Sinú y del San Jorge (CVS) and Corantioquia are receiving the amounts transferred to regional environmental authorities and the municipality of Tierralta, the largest by area in Colombia, is receiving most of the amounts transferred to municipalities. Transfers began in 2000 and amounts have been as follows from 2000 to 2004.

#### **Transfers from Urrá S.A. to regional corporations and municipalities (US\$)**

	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>Total</b>
Municipalities	557,900	614,400	661,900	607,900	525,400	2,967,500
Corporations	1,115,800	1,228,900	1,143,900	1,215,800	1,050,900	5,755,300
Total	1,673,700	1,843,300	1,805,800	1,823,700	1,576,300	8,722,800

Source : Asociación Colombiana de Generadores de Energía Eléctrica<sup>12</sup>

In 2004, the municipality of Tierralta received an amount of US\$ 471,700 and the CVS received an amount of US\$ 435,200 (about 7% of its total revenues). Transfers represent approximately 11% of the total revenues of the regional environmental agencies in Colombia and their second revenue source.

#### Outcomes and results

In 2002, the Office of the General Comptroller of Colombia (Controlaría General de la República) carried out a study on transfers from the electric sector to regional environmental authorities. In 2005, the same Office carried out a similar study that

<sup>12</sup> Colombian pesos have been converted to US\$ using the exchange rate at mid year.

also addressed municipalities. The main conclusions of these studies with regards to regional environmental agencies were as follows:

- According to Decree 1933, funds received from the electricity sector should be invested on the basis of a watershed management plan. However most regional environmental agencies lack such a plan, including the CVS and Corantioquia, which means that these funds are invested in a discretionary manner.
- A watershed may be, wholly or partly, under the jurisdiction of a national park. In such cases, the regional environmental agency and the national park should jointly prepare a watershed management plan. Such situation occurs with the Urrá 1 reservoir whose watershed belongs for the most part to the Paramillo National Park. It belongs to the Ministry of the Environment to take the lead on establishing a coordination process between both jurisdictions for the preparation of such a plan. However, when the report from the general comptroller was published, this coordination process still had to be put in place. Also, this ministry still has to play a more active leadership role with regards to the preparation and monitoring of watershed management plans.
- Regional environmental agencies do not have a separate accounting on the use of transfers from the electricity sector, which makes it difficult to control if funds received from the electricity sector are invested in areas determined by Law 99.
- Available revenue sources are not sufficient to fulfill all aspects of the mandate of the regional environmental corporations. This may explain why a number of corporations do not abide by the prescription of Article 9 of Decree 1933 which states that at the most 10% of the funds received from the electricity sector may be used for operation purposes.
- There is no system that would enable to evaluate the performance of the investments made with funds coming from revenue transfers. It is not possible to determine their rate of return no other indicators have been defined. The Ministry of Environment should play a more active role in defining such indicators.

The General Comptroller arrived at similar conclusions with regards to municipalities. Most of them do not use revenue transfers from the electricity sector for the types of projects that are identified in Decree 1933. Only 16% of the such funds are invested in water and sewage treatment projects as well as liquid and solid residue disposal projects.

#### Assessment of outcomes by involved stakeholders

Apart from the assessment by the Office of the General Comptroller of Colombia, no other information could be found on the outcomes of Law 99 by involved stakeholders.

### **Overall Conclusions**

The Colombian legislation establishes a clear framework for ensuring the effective long-term protection of the watershed situated upstream of a hydroelectric facility and the sums transferred from the electricity sector to municipalities and watershed agencies correspond to relatively high percentages of project revenues.

Although the legislation excludes the funding of social and economic development projects per se and does not explicitly address project-affected populations, watershed protection is a fundamental requirement for ensuring the sustainable use of local natural resources in the river basin upstream and downstream of the dam. This basic need was actually one of the main motives that justified the introduction of provisions on revenue transfers from hydroelectric projects in Law 99. This legislation thus addresses indirectly project-affected people as part of a wider group in the watershed upstream and bordering the reservoir. In addition, the legislation does not address downstream affected people.

The objective of Law 99 and its implementation therefore does not entirely fit the definition of monetary benefit sharing mechanism proposed in Chapter 2 of this report.

Based on the conclusions of the studies carried out by the General Comptroller of Colombia, the implementation of the framework raises a number of challenges related with the efficient use of the revenue transfers in the manner intended in the legislation. In most cases, including in the Urrá 1 project, the main deficiency is the absence of watershed management plans that should guide the use of the funds coming the electricity sector. The Ministry of the Environment should play a more active role with regards to the preparation of such plans by regional environmental agencies and in monitoring such plans.

In the case of the Urrá 1 Project, the implementation of Decree 1933 is made easier because only one municipality and one regional environmental agency receive a large proportion of revenue transfers. Besides, a National Park covers most of the watershed upstream of the dam. However, most of this area is the scene of numerous and complex problems, including uncontrolled occupation by settlers, illegal wood cutting, land degradation, illicit cultures and armed conflicts. Although many stakeholders – Urrá S.A., farmers and fishermen downstream of the dam, people living in the flood prone areas – share the same interest in re-establishing the integrity of the area, efforts to develop and implement a concerted management plan for the watershed upstream of the dam have not yet come to fruition.

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### **5.3 PROYECTO HIDROAMAZÓNICO (PROHA): THE JONDACHI HYDROELECTRIC PROJECT**

#### ***Identification of the Example***

##### Key issue addressed

Partnership agreement using equity sharing

##### Integration

Proyecto Hidroamazónico (PROHA), a bi-national agreement between the governments of Germany and Ecuador

##### Implementation

- Jondachi hydroelectric project
- Project owner and executing agency: Energía Renovable & Desarrollo Sustentable (ERDESU S.A.)
- Pre-feasibility studies have been completed. Earliest date for commissioning: 2008

##### Stage regarding the project life cycle

Project planning

#### ***Description of the Framework***

##### Country institutional set up

Ecuador is a republic which gained its independence from Spain in 1822. The president is both the chief of state and head of government. The legislative branch is constituted by a unicameral National Congress. The republic comprises 22 provinces. Ecuador has a population of some 13,5 million people (2006 est.).

The Ecuadorian Electricity Law of 1996 opened the electricity market. However, no private investment in new generating capacity had been recorded at the time of writing this report. This mainly has to be blamed on the inefficient distribution system. Due to a high theft rate, non payment by consumers and a regulated retail price per kWh below wholesale price, distributors have accumulated a debt of more than US\$ 1 billion with the generators (CDM - Executive Board, 2006).

Sumaco Napo-Galeras National Park was established in Northeast Ecuador and along the edge of the Amazon prairie in 1990. About 75% of the 85,000 people who live in the adjoining areas of the Park belong to the Napo-Quichas Indian community. This population lives predominantly on subsistence agriculture. This region is known for its rich biodiversity. It also has a huge hydropower potential, given abundant rainfalls (up to 6,000 mm per year) and its protected watersheds.

### Proyecto Hidroamazónico (PROHA)

GTZ, the German agency for technical cooperation, has provided assistance in the Sumaco Napo-Galeras region since the beginning of the 1990s under the Proyecto Hidroamazónico (PROHA) Agreement between the governments of Ecuador and Germany. The main objective of the Agreement is the sustainable development of hydropower resources in the Sumaco Napo-Galeras region. PROHA is supported by the Napo Provincial Council, the municipalities of Tena and Archidona, an indigenous regional organisation (FONAKIN), the Ministry of Environment and the Ministry of Energy and Mines.

One hydropower plant, La Cascada, has already been built and supplies electricity to some 150 families in two villages. Important lessons learned from this pilot project were the importance of establishing an effective mechanism for decision-making, benefit sharing and conflict resolution as well as fostering the local ownership of the project by clearly delegating a number of design and implementation responsibilities to the villages themselves (Schuster, 2005). A “Comité Eléctrico”, a small regional electricity association, was set up and is responsible for the operation, maintenance and management of the plant. The association, which comprises representatives from both communities and the local authorities has provided a platform for discussion and decision-making and ensured access to information for all stakeholders

Following extensive consultations with representatives from all stakeholders and with the help of GTZ, an independent power producer, Energía Renovable & Desarrollo Sostenible (ERDESU S.A.), was established in 2000 with the objective of developing the hydropower resources of the region up to a capacity of 25 MW while providing revenues to the regional and local authorities and indigenous organisations. For a three-year period beginning in 2003, the specific objectives are as follows:

- Prepare relevant decision papers, such as prefeasibility studies, cost comparisons, environmental impact studies, impact studies on economic development, financing proposals, etc.
- Strengthening ERDESU as an independent power producer and project developer through capacity building and human resource development.
- Design and construction of micro hydropower plants in remote villages.

ERDESU is a stock corporation, co-owned by the following stockholders:

- The government of the province of Napo (10%),
- the municipalities of Tena and Archidona (20%),
- Federación de Organizaciones de la Nacionalidad Kichwa de Napo (FONAKIN) (10%),
- Wasserkraft Volk, a German enterprise (30%) ,
- GTZ (30%).

### Organisational set up

ERDESU's seven-member supervisory board comprises professionals that are not directly connected to the stockholders, yet represent and are widely accepted by the three main stakeholders of the project: the local authorities, the indigenous population and the tourism industry. The board is chaired by the former mayor of Tena who has been involved in the first studies on the development of the hydropower resources of the region (Schuster, 2005).

The establishment of ERDESU aims to replicate on a larger scale the positive experience of the Cascada hydropower plant by involving all stakeholders in planning and decision-making. Given the more complex structure and the fact that GTZ's support is limited to the pre-feasibility stage, all stakeholders feel that only a strong ERDESU can secure the financial resources that are necessary for the project. It is thus seen as vital that the decision-making process be transparent, include all stakeholders and result in decision that are accepted by all stakeholders (Schuster, 2005).

### Implementation history

As described above, ERDESU was established in 2000 within the framework of PROHA. Prefeasibility studies have been completed on hydropower resources in the Sumaco Napo-Galeras region. These studies led to the selection of the 12 MW Jondachi hydroelectric project. Topographical, geo-technical, design and profitability studies have been completed for the selected site.

## ***Description of the Example***

### Project description

ERDESU has identified three potential sites for run-of-river power plants on the Jondachi river adjacent to the Sumaco Napo-Galeras National Park in the Province of Napo, approximately 150 km from Quito. The power plant at the selected site will have an installed capacity of 12 MW and will generate an annual average of 83.8 GWh with two Francis turbines. Any new hydropower production in Ecuador replaces thermal production. The production of the Jondachi hydroelectric project will thus result in an annual decrease of CO<sub>2</sub> emissions in Ecuador of 60,500 tons. The plant will be connected to the grid by a 500-meter 138 kV line. The local energy demand of approximately 5 MW can be completely covered by the project.

It is planned that ERDESU will transfer part of the revenues of the plant to a fund that will be managed by a board composed of representatives from involved stakeholders, including the concerned Indigenous communities, the municipalities and the government of the province of Napo (Fundación ERDESU). Revenues received will be used for social end environmental programs and projects.

## Implementation

Now that feasibility studies and a financial concept have been prepared, ERDESU is negotiating with banks and international donors to secure the financing of the investment.

## Outcomes

As described above, the project has gone through the concept, pre-feasibility and feasibility stages using a participative decision-making process. At the time of writing this report, the financing of the project has not yet been secured.

## Assessment of outcomes by involved stakeholders

At the time writing this report, it seems that all decisions made relating to the Jondachi project have gained the support of all involved stakeholders. Indeed, The structure of ERDESU and the decision-making process that has been used to plan the Jondachi project have been influenced to a high degree by the recommendation of the World Commission on Dams regarding the importance of gaining stakeholder acceptance, buy-in and active support in decision-making and implementation. GTZ, in supporting the project, puts an equal emphasis on the technical studies as well as on strengthening the capacity of ERDESU to foster and implement participative decision-making (Schuster, 2005).

## **Overall Conclusions**

ERDESU provides an rare example of the partnership form of monetary benefit sharing mechanism implemented from the planning stage. Although ERDESU has not resulted yet in project construction, two conclusions can be drawn from this example.

- First, by relying on participative decision-making since the beginning of the project, the hydroelectric power plant planned by ERDESU gained the support of all stakeholders involved. All major social groups were informed at an early stage and involved in all decisions concerning the planning and operation of the plant. The project is thus in line with the Strategic Priority Number 1 of the World Commission on Dams concerning “gaining public acceptance”.
- Second, through equity sharing, regional and local authorities as well as indigenous communities share the risks of the venture but also participate in its profits. They also gain a degree of control over the design and operation of the project. Finally, equity sharing facilitates capacity building and human resource development, which are among the main objectives of the project.

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## **5.4 NORWEGIAN LEGISLATION RELATING TO TAXES AND LICENSE FEES: THE GLOMMA AND LAAGEN RIVER BASIN DEVELOPMENT AND THE TOKKE HYDROPOWER PROJECT**

### ***Identification of the Example***

#### Key issue addressed

Providing additional long-term compensation using:

- Taxes and fees paid to regional and local authorities
- Equity sharing
- Property taxes
- Preferential electricity rates
- Business development fund

#### Integration

Industrial Concession Act No. 16 (1917)  
Watercourse Regulation Act (1917)  
Water Resources Act (2000)

#### Implementation

- Glomma and Laagen River Basin Development, Norway
  - Project owner and executing agency: Mixed ownership, including municipalities
  - Agency responsible for implementation: Niges Vassdrags- og energidirektorat (Norwegian Water Resources and Energy Directorate, NVE)
  - Construction of the dams and hydropower stations started at the beginning of the 20<sup>th</sup> century and has continued until today.
- Tokke Hydropower Project, Norway
  - Project owner and executing agency: Statkraft, a state-owned power company
  - Agency responsible for implementation: Norges Vassdrags- og energidirektorat (Norwegian Water Resources and Energy Directorate, NVE)
  - Project commissioned in 1960.

#### Stage regarding the project life cycle

Project planning, construction and operation

### ***Description of the Framework***

#### Country institutional set up

The Storting (parliament) determines the political framework for the energy sector and water resource management in Norway. The Ministry of Petroleum and Energy (MPE) has overall administrative responsibilities for these sectors. The Norwegian Water Resources and Energy Directorate (NVE) is a subordinate agency of the MPE

responsible for the management of Norway's energy and water resources. Its responsibilities include the coherent and environmentally-sound management of river systems and the promotion of efficient electricity trading, cost-effective energy systems and effective energy use. It also plays a central role in emergency response to flooding and dam failure, and heads contingency planning for power supply.

In 1991, the Storting decided to deregulate and unbundled the power sector. Competition and profit motivation were introduced to provide incentives for maintaining low prices and making utilities more efficient. Hydropower became a market commodity, causing the ownership structures to change. In order to increase efficiency, hydropower expansion was no longer to be based on centrally planned demand forecasts, but on the market forces of supply and demand. With deregulation in process, the industry is still willing to continue investing in hydropower, largely because it is still seen as clean energy in environmental terms (Norwegian Institute for Nature Research et Al., 2000)

Norway is a mountainous country with precipitations that are twice as high as the European average. The topography and climate thus create an optimum situation for hydropower development. Throughout the 20<sup>th</sup> century, hydropower has provided a basis for industrialisation, particularly for the expansion of the electro-metallurgical industry. Norway is presently the world's 6<sup>th</sup> largest hydropower producer and has the world's highest electricity consumption per capita.

#### Norwegian legislation relating to monetary benefit sharing

The Norwegian legislation comprises a number of mechanisms that ensure monetary benefit sharing from water management and hydropower projects with regional and local communities. These mechanisms fall under three categories that are described below:

- Provisions included in licenses pursuant to the Watercourse Regulation Act
- Taxes paid to regional and local authorities
- Revenues received by counties and municipalities in the form of dividends to the owners

##### 1) Provisions included in licenses pursuant to the Watercourse Regulation Act

The Watercourse Regulation Act of 1917 establishes conditions for the licenses that are granted for watercourse regulation. Based on experience and cooperation with the relevant authorities, the Norwegian Water Resources and Energy Directorate (NVE) has developed a set of standard terms of license. These terms include the following benefit sharing mechanisms:

- Compulsory delivery by the licensee of up to 10% of its electricity production to the local authorities concerned at cost: this was originally intended to secure local power supply. But it is now seen as a form of compensation to the local population for foregoing former water uses and for negative environmental impacts. If the municipality uses less than 10%, the surplus is offered to the county. This is often the case since many hydropower stations are located in remote and sparsely populated areas. The price corresponds to the production cost

which is generally lower than the average market price. However, in 1997-2000, the license power price was higher than market price because of “wet” years. However, the municipalities were able to sign long term contracts for selling the license power and they bought power on the spot market for their own consumption. The municipalities could still earn a profit even though the price of the license power was higher than prices on the spot market. Deliveries under these provisions total about 8.5 TWh/year.

- License fees: Such fees represent compensation for damage caused to municipalities and counties in which water resources are exploited. They are also an instrument for allowing them to share in the financial return on hydropower development. With specified maximum and minimum limits, fees are determined on the basis of factors such as the degree of environmental disturbance and the profitability of the development. As the licensing authority, NVE is entitled to adjust the license fee every five years. In 2003, license fees provided NOK 475 million to local and regional authorities and NOK 122 million to central government.
- Business development fund: Municipalities are entitled to receive from the electricity production company a non-recurrent amount to be used in a business development fund. This provision applies to projects built from 1969.

## 2) Taxes paid to local authorities

Counties and municipalities are entitled to receive three types of tax:

- Tax on profit: this tax is applicable to publicly and privately owned companies. As for all companies in Norway, electricity companies must pay a tax on profit at a rate of 28%. The distribution of the tax is as follows: 20.75% go to the state, 2.50% to the county and 4.75% to the municipalities.
- Property taxes: most municipalities levy a municipal property tax based on 0.7% of the market value of the power installations.
- Natural resource tax: this tax is independent of income as it is calculated on the basis of the average power generation from the plant over the last seven years. The rate was NKr 0.013 per kWh in 2004 (0.172 ¢ per kWh), of which NKr 0.011 goes to the municipality and NKr 0.002 to the county. The natural resource tax does not impose an additional burden on the companies since it is deductible from the income tax. Should the natural resource tax exceed the income tax, the excess can be carried forward for deduction in later year.

## 3) Revenues received by counties and municipalities in the form of dividends

Many electricity production or distribution companies are owned by municipalities and counties in Norway. As of January 1<sup>st</sup>, 2004, 231 companies (out of 432) were wholly or partly owned by local authorities and 140 of these were wholly owned by such authorities. Municipalities and counties own some 55% of Norway’s electricity generation capacity. The State – through Statkraft – owns about 30% and private companies roughly 15%. In addition local authorities and county councils own most of the regional and distribution grid. Municipalities thus receive significant amounts of revenues in the form of dividends from electricity companies they own.

## Organisational set up

The Norwegian Water Resources and Energy Directorate (NVE), a subordinate agency of the Ministry of Petroleum and Energy, is responsible for the licensing procedures for new hydropower plants and for the handling of notifications and applications. The Government grants the license, depending on the project's size (above 10 MW). In certain cases, the Parliament has to be consulted before a license is issued. The state-owned company, Statkraft, and companies owned by municipalities and counties receive their licenses for an unlimited period of time. Private companies receive their license for up to 60 years.

## Implementation history of the Watercourse Regulation Act

Before the 1900s, the right to use a waterfall in Norway belonged to whoever owned the adjacent land. The Watercourse Act of 1887 clarified the legal rights that had developed along the extensive use of water power for local mills over centuries. The right to use the water fall could be sold off separately by the owner of the adjacent land. But the owner of this right could not alter the water flow to the detriment of others without their permission. At the beginning of the 1900s, the prospect of profitable hydroelectric development projects gave the water use rights a new and increased value. The involvement of foreign investors raised concerns among Norwegian authorities. Thus in 1906, one year after Norway got its independence from Sweden, the government passed the first act (the "Panic" Act) to ensure national control over water resources (Wold et Al., 2006). Under this Law, the acquisition of water rights depend on Royal license, from which only municipal bodies and the State are exempt. The concession could be made conditional on certain obligations from the holder and was valid for 80 years at the most. After termination, the water rights together with any associated hydropower installations would transferred to the State without compensation to the previous owner.

Because water flow regulation is required to meet electricity consumption, the Watercourse Regulation Act of 1917 came to be the most important act related to the construction of larger dams. A license pursuant to this Act will only be granted if the benefits obtained through the project are considered by the licensing authority to be larger than the negative impacts imposed on both private and public interests, including those related to private property and the environment (Wold et Al., 2006).

## ***Description of the Example***

### Project description

**The Glomma and Laagen (G&L) basin** is the most populated river basin in Norway, with a population of some 620,000 people (14.5% of Norway's population). Hydropower development in the basin started at the beginning of the 20<sup>th</sup> century. Dam building in the basin continued until the late 1970s. Today, the G&L basin supplies some 10 TWh, about 9% of national electricity production. A typical feature of reservoirs in the G&L basin, as in most of Norway, is that they are originally natural lakes whose storage capacity has been increased by dams. They also are often located in remote highland areas and do not involve resettlement of people. With a

few exceptions, they have been built primarily for hydropower production. The G&L basin comprises a total of 26 dams/reservoirs.

Statkraft, the State Power Company, started the construction of the **Tokke hydropower scheme** in 1950. The total installed capacity amounts to 960 MW, of which 500 MW are located in the municipality of Tokke, located in the mountainous western part of Telemark county, 200 km southwest of Oslo. Tokke has a population of some 2,500 inhabitants. Farming and forestry are the main economic activities.

### Implementation

Revenues from the power installations in the G&L region were distributed as follows in 1998 (Norwegian Institute for Nature Research, 2000).

#### **Public Revenues from Power Installations in the G&L Region Million NOK (Million US\$)**

	Municipalities and counties in the G&L region	Out of the G&L region (State)	Total
Taxes	278 (36.9)	55 (7.3)	333 (44.2)
License fees	26 (3.4)	5 (0.7)	31 (4.1)
Sale of licensed energy	20 (2.7)	0	20 (2.7)
Owner incomes (dividends)	90 (11.9)	60 (8.0)	150 (19.9)
<b>Total</b>	<b>414 (54.9)</b>	<b>120 (16.0)</b>	<b>534 (70.9)</b>

The counties and municipalities of the G&L region received some 80% of the total revenues redistributed to government authorities by power companies in this region. Most of these revenues were paid in the form of taxes and dividends. For the municipalities, these revenues represent about 1.9% of their total budget. Some municipalities in the G&L region have relatively larger energy revenues that make up to more than 5% of their budget. However, these municipalities receive lower subsidies from the State. The net effect of the energy revenues on the budget of municipalities in the G&L region must thus be reduced to some 1.5% of their total budget.

Since the Act that allowed for the setting up of business development funds was introduced after the construction of most hydropower projects in the G&L projects, only a few municipalities received a non-recurrent amount to be used in such funds. The total amount received was \$3.9 million.

The Tokke Project provides an example of the effect of the sale of licensed electricity to the municipality. The quantity of licensed electricity delivered by the local utility exceeds the total power demand in Tokke. In 2001, the licensed power represented total savings of NOK 6.5 million on the electricity bills in Tokke. These savings came in addition to taxes and license fees paid by Statkraft and which amounted to

NOK 40.5 million. The contribution of Statkraft to Tokke's municipal revenues thus represents a significant amount when compared to the total cost of municipal services which amount to NOK 165 million.

### Outcomes

No information could be found on the use the revenues received from power installations by municipalities and counties in the G&L region.

### Assessment of outcomes by involved stakeholders

No information could be found on the assessment of the results of the implementation of the legislation relating to revenues received from power installations by municipalities and counties in the G&L region.

### **Overall Conclusions**

The Norwegian legislation comprises a variety of mechanisms (revenue sharing, equity sharing, property taxes, preferential electricity rates) that explicitly recognize that project affected people, as part of the populations of municipalities in which water resources are exploited, must receive a share of the project benefits, over and above mitigation and compensation measures that are included in project design. However, at least in the G&L region, such revenues represent a relatively small percentage of the revenues of the municipal sector. Moreover, the tax system in Norway implicitly does not recognize that municipalities with more hydropower installations on their territory should receive more tax revenues from power companies, since larger tax revenues are compensated by lower state subsidies.

In addition to the taxes and fees described above, hydropower production companies in Norway also pay a tax on economic rent. This tax is justified by the possible existence of a surplus return that a company may obtain by exploiting a water resource, i.e. a share of profit that exceeds the normal return on capital. The rate is 27% of net revenues (revenues less operating costs, depreciation and tax-free revenues). This tax is paid to the central government, although it can be argued that part of the rent should be channelled to project-affected populations since they sacrifice their access to and use of local natural resources that contribute to project development.

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## **5.5 COLUMBIA BASIN TRUST**

### ***Identification of the Example***

#### Key issue addressed

Addressing outstanding social issues using revenue sharing, equity sharing and the establishment of a development fund

#### Integration

Columbia Basin Trust Act (1995)

#### Implementation

- Duncan (completed in 1968), Keenleyside (1969) and Mica (1975) dams
- Project owner and operator: BC Hydro

#### Stage regarding the project life cycle

Project operation

### ***Description of the Framework***

#### Country institutional framework

British Columbia is located in the federative state of Canada which is governed by a democratic parliament headed by a Prime Minister. Each of its actual 10 provinces and 3 territories have a high level of autonomy. Hydroelectric projects built in each province are subject to provincial environmental regulations unless it concerns an aboriginal territory or a special status territory such as the James Bay and Northern Québec Agreement (JBNQA). Indigenous or Native populations represent a small percentage of the Canadian population but many communities have unsettled land claims and they often occupy and use remote territory where hydroelectric project are planned.

BC Hydro and Power Authority (BC Hydro), a provincial crown corporation, is the third-largest electric utility in Canada. Most of the electricity is produced at 30 hydroelectric generating plants which have a total capacity of about 10,000 MW. More than 80% of this is produced by major stations on the Columbia and Peace rivers.

#### Implementation

After working with Columbia Basin residents, including leaders from local communities and Amerindian communities, the Province of British Columbia in Canada created the Columbia Basin Trust (CBT) in 1995. The formation of the CBT

recognized the continuing impacts from the historical management of water in the Columbia Basin. The following subsections describe the Columbia River Treaty between the U.S and Canada which resulted in the construction of three storage dams in Canada and of a fourth dam in the U.S., and then the origins of the CBT.

a) *The Columbia River Treaty*

In 1961, the Government of Canada (who later transferred its obligation to the province of British Columbia) and the United States signed the Columbia River Treaty which was ratified in 1964. The Treaty was for a period of 60 years with renegotiation of the terms after 30 years. The Columbia River is an important river in the western part of North America. It has its source in the Canadian Province of British Columbia and the mainstem flows from there into the U.S. State of Washington. The Columbia River has important tributaries both in Canada and in the United States. A large fraction of the total water in the river comes from snow melt in the mountains, so that the flow is highly seasonal. The river has therefore been subject to severe flooding, mostly in the United States.

The hydroelectric potential of the Columbia has been heavily developed in the United States since the end of the 19th century, often in multipurpose projects including flood control, irrigation and recreation. There were also developments on the U.S. tributaries. By contrast, none of the mainstem of the Columbia River had been developed in British Columbia at the time of the negotiation of the Treaty.

The United States had two objectives from cooperative development of the Columbia River in British Columbia: increased flood protection and increased generation at its existing hydroelectric stations, some of which were run-of-river and some of which did not have enough storage to allow for full utilization of the total annual water flow. British Columbia did not need flood protection but could use some additional electricity to meet expected domestic needs.

The purpose of the Treaty is to provide a structure for the co-operative use of the Columbia River in order to provide Canada and the United States with greater hydroelectric power and flood control. To accomplish this goal, Canada was required to build three large storage dams that would provide flood control and power benefits downstream in the United States. In return, Canada got an upfront fixed payment representing the discounted present value of the flood control benefits, plus the rights to half of the additional electricity generated because of the added storage and flow regulation.

This electricity (called the Downstream Benefits) was then sold by British Columbia to buyers in the United States on a 30-year contract for an upfront payment of US\$254 million. The total of the upfront payment for flood control and electricity sales was sufficient to pay for all the Treaty projects in British Columbia, plus about half the cost of installing hydroelectric generation facilities at Mica, one of the three Treaty dams. The electricity from that facility is the sole property of British Columbia Hydro, the province's power utility. The Province of British Columbia is now receiving its entitlement of downstream benefits for the remaining 30 years of the Treaty.

## *b) Origins of the Columbia Basin Trust*

As a result of the Treaty, three dams were built on the Canadian side: Duncan (completed in 1968), Keenleyside (1969) and Mica (1975). As well, the Treaty allowed for the United States to build a fourth dam, Libby (1973), with a large portion of its reservoir impounding in southeastern British Columbia. These dams were built in the 1960s and early 1970s. At that time, less attention was devoted to mitigation and compensation measures and there had been very few consultations with the project-affected people. The main impacts of the three dams were the following:

- 2,300 people were displaced by the reservoirs and project facilities.
- 60,000 ha of high-value, valley-bottom land was flooded.
- Numerous Amerindian archaeological and burial sites were submerged or buried.
- Areas that were critical for the cultural, economic and environmental well-being of the region were lost.

The region is still dealing with significant ongoing impacts related to the rise and fall of water levels on the Columbia River on habitats, recreation and tourism.

In the early 1990s, the people in the Canadian part of the basin became aware that an opportunity for public involvement might present itself. The sale of the first 30 years of British Columbia's share of the downstream benefits through the Columbia River Treaty was about to expire. Residents of the region felt local people should be given more say in matters concerning environmental, economic and social health. They thus came together to press the Province of British Columbia for recognition of the injustice of this situation. Local governments in the basin coordinated their efforts at the regional district and tribal council level under the Columbia River Treaty Committee, which first met in 1992. The Committee negotiated with the Province for the creation of a Trust governed by a board of basin residents, and an allocation of funding to the region representing a fair share of the ongoing downstream benefits earned under the Treaty, to be managed by the Trust. On both counts the negotiations were successful. In 1995, The Columbia Basin Trust was created through the *Columbia Basin Trust Act*.

CBT is an organisation working on behalf of the 170,000 residents of the Columbia Basin to bring benefits to the region most affected by the Columbian River Treaty. As directed by legislation, the *Columbia Basin Management Plan* was developed with inputs from residents of the region in 1997. It outlines CBT's mission vision, mandate and core values, guiding principles and strategic priorities. The Management Plan is in the process of being updated, again with inputs from the residents. The CBT mission is defined as follows: "The Columbia Basin Trust supports efforts by the people of the basin to create a legacy of social, economic and environmental well-being and to achieve greater self-sufficiency for present and future generations."

In 1995, CBT was endowed with a CAN\$ 295 million financial commitment from the Province of British Columbia or approximately 5 % of the Downstream Benefits owned by the Province from the United States. Of that, CAN\$250 million (the Legacy Fund) was used for financing three power project developments in the basin (together

with Columbia Power Corporation) and CAN\$ 45 million (the Basin Fund) was invested in non-power investments. Under the financial agreement, CBT also received CAN\$ 2 million from the Province of British Columbia for operating costs for the years 1991 through 2010.

### Organisational set up

A board of twelve directors governs CBT. The five regional districts of the Columbia Basin and the Ktunaxa Nation Council each nominate a minimum of one and a maximum of four directors and the province of British Columbia nominates the remaining six directors. The Lieutenant Governor in Council makes all of the final appointments to the board. All directors must reside in the Columbia Basin. The directors provide policy directions in accordance with both the legislation and the Columbia Basin Management Plan. CBT employs 25 people in three regional offices and the head office.

### Implementation history

According to the *Columbia Basin Management Plan*, CBT's core functions are to: a) invest capital and manage the assets of CBT, and b) spend the income earned from the CBT'S investments to deliver benefits to the Columbia Basin. These functions are described below.

- Investments: CBT's non-power portfolio is composed of a range of investments, from business loans to deposits and securities to real estate. The initial funding for investments came from a CAN\$45 million endowment provided by the Province of British Columbia (Basin Fund). CBT is also a half owner of three major power projects in the Columbia Basin and half owner of the development rights a fourth project, also in the Columbia Basin (Legacy Fund). Columbia Power Corporation is the other half owner of these projects and manages the projects on behalf of the partners. The projects are:
  - Brilliant Dam, which was purchased in 1996,
  - Arrow Lakes Generating Station (185 MW), on which construction started in 1999, and was completed in 2002,
  - Brilliant Expansion (120 MW), on which construction started in 2003 and which is scheduled for completion in 2006, and
  - Waneta Expansion (350 MW), which is in the planning and permitting stages.
- Delivery of benefits: CBT uses the net income generated from its investments to fund its corporate operations and its delivery of benefits programs. CBT develops its delivery of benefits programs in consultation with advisory committees of Columbia Basin residents who help identify regional and community of interest priorities. In 2004-05, CBT distributed CAN\$ 4.28 million in funding to 515 projects and services encompassing all aspects of the social, cultural, economic and environmental health of the region. CBT's main program areas are: environment; economic development; social; education and training; youth initiatives; arts, culture and heritage. In its delivery of benefits programs, CBT frequently partners with other organisations and agencies in the Columbia Basin

which have similar interests in the region. In accordance with the Columbia Basin Trust Act, CBT's work in the region does not relieve any level of government from its obligation to the Columbia Basin.

### ***Description of the Example***

The template for presentation of examples is not applicable to the description of the example of the Columbia Basin Trust. The mandate of this Trust was established to address outstanding social issues of existing dams in a geographical area.

### ***Overall Conclusions***

The Trust represents the case of a measure meant to address outstanding environmental and social issues of existing dams. This was made possible following repeated claims from project-affected people but also because of the existence of a significant rent generated by the Treaty projects. This example is also a rare case of an explicit measurement of the economic rent generated by dam projects.

The Trust also exemplifies several approaches that maximize the efficiency of monetary benefit sharing mechanisms, particularly the following:

- Negotiations involving all concerned stakeholders resulted in a sharing of the rent generated by the Treaty dams. The Trust was thus endowed with what can be deemed a fair share of this rent.
- The Trust includes several provisions providing for the active involvement of community organisations in the project-affected area.
- Investment and non-investment activities financed by the Trust cover a wide array of economic, environmental and social objectives, all contributing to sustainable development in the project-affected area.

It is important to note the success of the above approaches is dependent on the existence of a strong civil society.

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## **5.6 HYDRO-QUÉBEC'S APPROACH ON PARTNERSHIP WITH ABORIGINAL COMMUNITIES: THE MINASHTUK PROJECT**

### ***Identification of the Example***

#### Key issue addressed

Partnership agreement using equity and revenue sharing

#### Integration

Hydro-Québec participatory approach on partnership with local communities

#### Implementation

- Minashtuk hydroelectric project, Canada
- Project proponent: Hydro-Ilnu (1996) inc., general partner of Minashtuk Limited Partnership Company
- Construction period: February 1999-May 2000

#### Stage regarding the project life cycle

Project planning, implementation and operation

### ***Description of the Framework<sup>13</sup>***

#### Country institutional set up

The Province of Québec is located in the federative state of Canada which is governed by a democratic parliament headed by a Prime Minister. Each of its ten provinces and three territories have a high level of autonomy. Hydroelectric projects built in each province are subject to provincial environmental regulations unless it concerns an aboriginal territory or a special status territory. Aboriginal or Native population represent a small percentage of the Canadian population but many communities have unsettled land claims and they often occupy and use remote territories where hydroelectric projects are planned.

Hydro-Québec is an electricity producer and a major North-American distributor owned by the government of the province of Québec. Its generating facilities have an installed capacity of some 34,000 MW, with hydropower producing 96% of its total energy output.

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<sup>13</sup> Description of the framework is generally extracted from Roux, Denis and Seelos, Karin. 2004. *Building on Partnerships with Aboriginal Communities*. The International Journal on Hydropower & Dams. Issue 4, 2004. Aqua-Media International Ltd.

## Hydro-Québec's participatory approach with aboriginal communities

The following two fundamentals of Hydro-Québec's participatory approach with aboriginal communities can be identified on the basis of its thirty-year experience in developing partnerships with aboriginal communities (Roux et Al., 2004):

- respecting the basic principles of democracy, such as transparency, openness, fairness, negotiation with elected representatives and reverence to majority decisions; and,
- continuous dialogue, based on two-way communications as a means to share knowledge and foster mutual understanding.

Moreover, under Hydro-Québec's 1998-2002 strategic plan, three self-imposed essential conditions must be met for Hydro-Québec to undertake any new project:

- the project must be profitable under market conditions;
- the project must be environmentally acceptable according to the principles of sustainable development; and,
- the project must be well received by local communities.

Regarding the last of these three conditions, Hydro-Québec proposes a partnership with local 'host' communities affected by new energy projects, including aboriginal communities. The partnership approach reflects Hydro-Québec business priorities as well as the readiness of aboriginal communities to pursue their own interests.

A partnership provides a flexible framework through which local aboriginal and non-aboriginal communities can make a project theirs, even though the utility assumes the financing, construction and operation of the project. Design work and measures to minimize negative impacts and to maximize positive outcomes are carried out in consultation with local communities. For Hydro-Québec, partnership agreements substantiate local acceptance of a project, thereby reducing the level of risk and the costs of a lengthy project-planning and authorization process. For the local communities, the partnership is a tool for collective enrichment and recognition that wide-ranging project benefits generated from local and regional resources will flow back into the community.

### Organisational set up

Hydro-Québec Aboriginal Affairs Department is responsible for the implementation of this framework. No additional information is directly available on the organisational set up used for the implementation, enforcement and monitoring of Hydro-Québec's participatory approach with aboriginal communities.

### Implementation of the framework

Partnerships with aboriginal communities can take various forms depending on particular community features. Partnership agreements also evolve over time by the development of long-term relationship with the same community. One the most progressive and comprehensive form of partnership has recently been set up with representatives of the Cree community. Partnership relations between Hydro-Québec

and the Crees have been evolving since the negotiation of a well known land claim settlement treaty in 1975, the James Bay Northern Québec Agreement, in which Hydro-Québec's projects and remedial measures were dealt within a much broader social contract type of agreement, to an agreement aimed at implementing jointly remedial works in 1992, the so-called Opimiscow-La Grande Agreement. Partnership relations further evolved to an agreement on joint planning, studying, implementing and operating of hydropower projects; this was the Boumhounan Agreement signed in 2002.

A variation of the joint venture formula was negotiated with the Innu community of Uashat Maliotenam on Québec's North Shore, within the context of the Sainte-Marguerite-3 project. Through this Uashat Mak Mani-Utenam agreement, the Innu community resumed use of the back country, hence renewing its cultural roots and traditions.

Partnerships can also take the form of benefit sharing initiatives, such as the Pesamit agreement with the Innu community of Betsiamites in the context of the Touloustouc hydroelectric project and three partial river diversions. The Minashtuk project, presented below, is another benefit sharing initiative which shows how an aboriginal community can be enabled to develop its own hydropower project, and to develop major entrepreneurial skills over time.

### ***Description of the Example***

#### Project description

The Minashtuk hydroelectric project is located in the Province of Québec, in Eastern Canada, on the Mistassibi River, within the boundaries of the city of Dolbeau-Mistassini, which has a population of some 15,400 inhabitants. With a capacity of 9.9 MW, the Minashtuk Project is a run-of-river facility with minimal environmental impacts since it involves no impoundment and little water flow changes. Construction began in February 1999 and the project has been in operation since May 2000.

The main developer of the project is the Band Council of the Montagnais of Lac Saint-Jean (the Montagnais also call themselves Innu or Innu). This Amerindian community (called Mashteuiatsh) has a total population of some 4,600 inhabitants. About 2,000 of the community's members live near the project site. The Innu have traditionally fished, hunted and trapped in the region where the Mistassibi River is located. The following table summarizes the main features of the project.

Project cost	C\$25 million
Installed capacity	9.9 MW
Type of turbine	Vertical Kaplan
Number of turbines	2
Type of dam	Three inflatable bladders
Unit design flow	63 m <sup>3</sup> /s

Rated head	9.4 m
Annual output	61 GWh
Load factor	70%

### Implementation

Since the beginning of the 1990s, the Minashtuk project has been considered by the Montagnais of Lac Saint-Jean as a means to alleviate the high level of unemployment in the community and ensure its long-term social and economic development. In an agreement signed with Hydro-Québec for the construction of a transmission line in 1994, both parties had expressed their intention to enter into partnerships for specific projects. However, proper mechanisms had to be developed to ensure the long-term profitability of such projects for the Montagnais of Lac Saint-Jean. The community also wanted to retain a degree of control over project design.

The project is financed and owned by the Minashtuk Limited Partnership Company. A limited partnership is defined as follows by the Civil Code of Québec in Articles 2236 and 2238:

*A limited partnership is a partnership consisting of one or more general partners who are the sole persons authorized to administer and bind the partnership, and of one or more special partners who are bound to furnish a contribution to the common stock of the partnership.*

*General partners have the powers, rights and obligations of the partners of a general partnership but they are bound to render an account of their administration by the special partners.*

*The general partners are bound by the same obligations towards the special partners as those binding an administrator charged with full administration of the property of others towards the beneficiary of the administration. Clauses restricting the powers of the general partners may not be set up against third persons in good faith.*

The Band Council of the Montagnais of Lac Saint-Jean is the company's majority shareholder with more than 50% of the shares. Hydro-Québec owns the rest of the company's shares. In addition to having an interest in the partnership, Hydro-Québec has agreed to buy all of the electricity generated by the project under a 20-year contract. The contract is renewable for another 20 years. The shareholders directly invested about 25% of the total cost of the project, with the remainder of the project being financed through a long-term bank loan. The 20-year contract with Hydro-Québec was a significant factor in the financing of the project.

Hydro-Ilnu, a company fully owned by the Band Council of the Montagnais of Lac Saint-Jean, is the general partner of the limited partnership. It is responsible for designing the generating station, conducting feasibility studies, obtaining all the governmental authorizations, negotiating and administering a turnkey construction contract. It now operates the facility. Minashtuk is the first project developed by

Hydro-Ilnu, and also the first hydro scheme within the province of Québec that was developed and led by an aboriginal community.

### Outcomes and results

Besides being guaranteed a direct entitlement to a share of the profits of the Minashtuk Project, the limited partnership company allowed the Montagnais of Lac Saint-Jean, as majority shareholder and owner of Hydro-Ilnu, to design the project according to their priorities. The project was also planned in close partnership with the city of Dolbeau-Mistassini, under the common goal of maximizing regional economic spin-offs. The long-term profitability of the Minashtuk Project is ensured by strict management rules. Such rules include, for instance, obligatory calls for tenders for contracts for goods and services and regular maintenance programs, as conditions to be respected in the long-term contract for the purchase of power from Hydro-Québec.

The main long-term goal of the Montagnais of Lac Saint-Jean is to reinvest the profits into other projects that can generate employment for the Pekuakamuilnuatsh, the members of their community. Another goal pursued by the community is to favour the transfer of technology and the training of technically specialized manpower. A follow-up assessment would be required to evaluate whether up to what point these goals have been met.

Based on this experience, the Band's Council created a community development agency called "Développement Piekukami Ilnuatsh Inc.". This agency took a significant part as subcontractor in the construction of the Manouane river diversion project and was qualified subsequently to take charge of the leading contract for building the work camp and ensuring the room and board service at the Péribonka construction site. These contracts enabled community members to acquire skills in various professions (Roux et Al., 2004).

### Assessment of outcomes by involved stakeholders

All involved stakeholders consider the Minashtuk project as having been mutually profitable. In 2003, the Band Council declared in a Public Hearing concerning another hydroelectric development (Conseil des Montagnais du Lac Saint-Jean, 2003): "We are privileged to maintain good relations with our neighbours as well as with significant actors, such as Hydro-Québec. We can thus expect positive long-term outcomes from our partnership. Since the setting-up of the Mashteuiatsh Hydro-Québec Joint Committee in 1993, our relations with the State Company have significantly improved and are mutually respectful. Such a relationship enables us to monitor adequately the planning as well as the execution of projects" (our translation). Mr. Clifford Moar, the Chief of the Band Council, also declared at the inauguration of the Minashtuk power station: "We are fulfilling our role as true partners in regional development. The Montagnais contribution cannot be overlooked ... [the project] constitutes a good example of partnership between the Montagnais of Lake Saint-Jean and Hydro-Québec, pursuing common objectives" (our translation).

## **Overall Conclusions**

The Minashtuk Project constitutes an equity sharing type of monetary benefit sharing mechanism used within the framework of a partnership agreement. A determining factor of success for this type of mechanism is the capacity of the local community to invest and/or borrow funds. In the Minashtuk case, the limited partnership form of company used to develop the project and Hydro-Québec's commitment to buy all of the electricity generated by the project under a 20-year contract provided the necessary conditions for local community to invest. Replicating this type of arrangement in other contexts requires that the local community benefit from a long-term power purchasing agreement that enables to assume the financial risks involved.

From the developer's point of view, determining factors are (Roux et Al., 2004):

- Dedication to a long-term relationship;
- Mutual high-level commitment;
- Practicing two-way communication to enhance mutual knowledge and understanding;
- Offering opportunities for community development;
- Capacity building;
- Flexibility.

## **References**

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## **5.7 HYDRO-QUÉBEC'S APPROACH ON PARTNERSHIP WITH ABORIGINAL COMMUNITIES: THE TOULNUSTOUC PROJECT**

### ***Identification of the Example***

#### Key issue addressed

Partnership agreement using equity sharing  
Development fund

#### Integration

Hydro-Québec participatory approach on partnership with local communities

#### Implementation

- Toulnostouc Hydroelectric Project, Canada
- Project proponent: Hydro-Québec, general partner of Betsiamites Joint Partnership Company
- Construction period: November 2001 - April 2005

#### Stage regarding the project life cycle

Project planning, implementation and operation

### ***Description of the Framework***

#### Country institutional set up

The Province of Québec is located in the federative state of Canada which is governed by a democratic parliament headed by a Prime Minister. Each of its ten provinces and three territories have a high level of autonomy. Hydroelectric projects built in each provinces are subject to provincial environmental regulations unless it concerns an aboriginal territory or a special status territory. Aboriginal or Native population represent a small percentage of the Canadian population but many communities have unsettled land claims and they often occupy and use remote territories where hydroelectric projects are planned.

Hydro-Québec is a Government-owned electricity producer and a major North-American distributor. Its generating facilities have an installed capacity of some 34,000 MW, with hydropower producing 96% of its total energy output.

#### Hydro-Québec's participatory approach with aboriginal communities

The following two fundamentals of Hydro-Québec's participatory approach with aboriginal communities can be identified on the basis of its thirty-year experience in developing partnerships with aboriginal communities (Roux et Al., 2004):

- respecting the basic principles of democracy, such as transparency, openness, fairness, negotiation with elected representatives and reverence to majority decisions; and,
- continuous dialogue, based on two-way communications as a means to share knowledge and foster mutual understanding.

Moreover, under Hydro-Québec's 1998-2002 strategic plan, three self-imposed essential conditions must be met for Hydro-Québec to undertake any new project:

- the project must be profitable under market conditions;
- the project must be environmentally acceptable according to the principles of sustainable development; and,
- the project must be well received by local communities.

Regarding the last of these three conditions, Hydro-Québec proposes a partnership with local 'host' communities affected by new energy projects, including aboriginal communities. The partnership approach reflects Hydro-Québec business priorities as well as the readiness of aboriginal communities to pursue their own interests.

A partnership provides a flexible framework through which local aboriginal and non-aboriginal communities can make a project theirs, at the intellectual, material and financial levels, even though the utility assumes the financing, construction and operation of the project. Design work and measures to minimize negative impacts and to maximize positive outcomes are carried out in consultation with local communities. For Hydro-Québec, partnership agreements substantiate local acceptance of a project, thereby reducing the level of risk and the costs of a lengthy project-planning and authorization process. For the local communities, the partnership is a tool for collective enrichment and recognition that wide-ranging project benefits generated from local and regional resources will flow back into the community.

#### Organisational set up

Hydro-Québec Aboriginal Affairs Department is responsible for the implementation of this framework. No additional information is directly available on the organisational set up used for the implementation, enforcement and monitoring of Hydro-Québec's participatory approach with aboriginal communities.

#### Implementation of the framework

Partnerships with aboriginal communities can take various forms depending on particular community features. Partnership agreements also evolve over time by the development of long-term relationship with the same community. One the most progressive and comprehensive form of partnership has recently been set up with representatives of the Cree community. Partnership relations between Hydro-Québec and the Crees have been evolving since the negotiation of a well known land claim settlement treaty in 1975, the James Bay Northern Québec Agreement, in which Hydro-Québec's projects and remedial measures were dealt within a much broader social contract type of agreement, to an agreement aimed at implementing jointly remedial works in 1992, the so-called Opimiscow-La Grande Agreement. Partnership

relations further evolved to an agreement on joint planning, studying, implementing and operating of hydropower projects; this was the Boumhounan Agreement signed in 2002.

A variation of the joint venture formula was negotiated with the Innu community of Uashat Maliotenam on Québec's North Shore, within the context of the Sainte-Marguerite-3 project. Through this Uashat Mak Mani-Utenam Agreement, the Innu community resumed use of the back country, hence renewing its cultural roots and traditions.

Partnerships can also take the form of benefit sharing initiatives, such as the Pesamit Agreement presented below. This agreement was signed with the Innu community of Betsiamites in the context of three partial river diversion and the Toulnostouc project.

### ***Description of the Example***

#### Project description

The projects involve the construction of a 526 MW hydropower dam on the Toulnostouc River below the existing Lac Sainte-Anne Reservoir and the partial diversions of the Portneuf, Sault-aux-Cochons and Manouane Rivers towards the existing Bersimis-1 and Bersimis-2 hydropower dams on the Betsiamites River. The Toulnostouc dam is 77 m high. The existing reservoir area has been enlarged by 10% and now has a surface area of 235 km<sup>2</sup>. The projects represent an average annual production of 2.7 TWh and an investment of C\$804 million. Construction of the Toulnostouc began in November 2001 following government approvals. The last component of these projects was commissioned in April 2005.

The various developments are within the boundaries of five regional county municipalities (or RCMs) and lands claimed by three Innu indigenous communities: Betsiamites (2,600 inhabitants), Essipit (200) and Mashteuiatsh (2,000). The Innu (or Montagnais) communities of Québec are relatively small and some are impoverished when compared to other non-indigenous communities.

#### Implementation

The projects have been developed in partnership with the five RCMs and the three Innu communities. Specific agreements have been signed with three Innu communities and with four RCMs. Project design and environmental assessments were carried out under the responsibility of Hydro-Québec in close co-operation with the local communities.

##### 1) Agreements with involved Innu communities

The Pesamit Agreement (1999) was signed in September 1999 by Hydro-Québec and the Innu community of Betsiamites. The Agreement was submitted for approval through a community-wide referendum. The community voted close to 80% in favor of the Agreement with a turn-out of about 50% of residents eligible to vote.

According to the Agreement, the community of Betsiamites has invested 17.5% of the total construction costs of the three partial river diversions. The costs of these diversions are estimated at C\$82 million. In return, the community benefits from revenues equivalent to the value of 17.5% of the total energy produced by the river diversions minus the corresponding operating and environmental monitoring and follow-up costs. Hydro-Québec buys the power from Betsiamites over a 50 year period under an agreed pricing formula, based on the electricity tariffs in Québec and the New England Power Pool prices. In 50 years, the community will retain the option of extending the partnership agreement for another 49 years.

The Agreement also covers the Toulnostouc Project. However, for that project, there will not be an investment opportunity offered to Betsiamites, considering the size and expected return on investment as well as the associated risk for the Band Council which is responsible for managing Betsiamites community services.

In addition to the revenue sharing mechanisms, Hydro-Québec will contribute to:

- a total of C\$10.4 million for the Betsiamites Community Development Fund;
- a total of C\$11 million for environmental mitigation and socioeconomic and cultural development programs for the community to be managed through a joint Betsiamites/Hydro-Québec Remedial Work Corporation;
- job creation objectives for the Innu of Betsiamites set at 12.5% of the total person-years of employment related to the studies and construction of the projects;
- an agreed-upon goal for contracts to be awarded to Innu companies from Betsiamites set at 10% of the contracts awarded for the projects.

Hydro-Québec and the Innu community of Essipit signed a similar partnership agreement in October 1999. According to that agreement, the community of Essipit has invested 3.4 % of the total construction costs of the partial diversion of the Portneuf River, which are estimated at C\$10 million. In return, the community of Essipit benefits from revenues equivalent to the value of 3.4% of the total energy produced by the river diversion. In addition, the community of Esipit received a total of C\$500,000 for remedial works.

In June 2001, a third partnership agreement was signed by Hydro-Québec and the Innu community of Mashteuiatsh concerning the partial diversion of the Manouane River. The community has invested 7.3% of the cost of the project. The community of Mashteuiatsh received C\$650,000 for remedial works.

## 2) Agreements with involved regional municipalities (RCMs)

In conjunction with the agreements signed with Innu communities, Hydro-Québec has reached agreements with four concerned RCMs in view of establishing a limited partnership company for the three river diversions. This is the first agreement of its kind to be signed between the Provincial power utility and RCMs. The fifth RCM chose not to sign the agreement. The agreement covers the partial diversion of three rivers into an existing hydropower reservoir.

The agreement specifies that Hydro-Québec will be both the official representative of the partnership (known as the *Betsiamites Joint Partnership Company*) and the majority shareholder with at least 86 % of its shares. The responsibility for project construction and operation is devolved by the company to Hydro-Québec. The limited partnership company will exist for a period of 50 years, subsequent to which the RCMs retain the option of extending the partnership agreement for another 49 years. Following the completion of the projects, the four RCMs that are parties to the agreement will have the option to acquire 14% of the partnership shares, which would represent an investment on their part of C\$6.5 million. In return, the RCMs will receive over a period of 50 years. These royalties will be shared out amongst each of the signatory RCMs in proportion to the amount of their investment.

For the Toulnostouc Project, the RCM of Manicouagan, which was the only RCM involved in this area, chose a compensation plan of C\$14 million for a community development fund.

### Outcomes

The last component of the Toulnostouc Project and of the three river diversions was commissioned in April 2005. It is thus too early to evaluate the outcomes of the use of the revenues received by the involved Innu communities and the RCMs as a result of their investment.

### Assessment of outcomes by involved stakeholders

Each agreement was submitted to the Innu community concerned which approved it. From the point of view of Hydro-Québec, such approvals are evidence that the projects are well received by the local communities, thereby reducing the levels of risk and associated costs related to a lengthy project planning and authorization process. For the involved communities, the agreements constitute a recognition of the requirement to transfer to such communities a share of the widespread project benefits derived from the use of local or regional resources. As observed by the Prefect of the RCM of La-Haute-Côte-Nord: *“In a context of devolution of powers towards local governments, the sums redistributed within our community will enable us to ensure our development according to models adapted to our needs.”*

### **Overall conclusions**

The agreements enabled the involved Innu communities and RCMs to invest in the partial diversions and benefit financially from the development of the hydraulic resources in their area. For Hydro-Québec, the agreements represented a recognition of their entitlement to a share of the economic rent generated by the projects as well as a say in the management of local water resources. They also provided an assurance of the local acceptance of the project.

A determining factor of success for this type of mechanism is the capacity of the local community to invest and/or borrow funds. In this case, Hydro-Québec's commitment

to buy all of the electricity generated by the project provided the necessary conditions for local community to invest. Replicating this type of arrangement in other contexts requires that the local community benefit from a long-term power purchasing agreement that enables to assume the financial risks involved.

### **References**

Roux, Denis and Seelos, Karin. 2004. *Building on Partnerships with Aboriginal Communities*. The International Journal on Hydropower & Dams. Issue 4, 2004. Aqua-Media International Ltd.

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## **5.8 PAIX DES BRAVES AGREEMENT BETWEEN THE GOVERNMENT OF QUÉBEC AND THE GRAND COUNCIL OF THE CREES: THE EASTMAIN-1 PROJECT AND THE EASTMAIN-1-A AND RUPERT DIVERSION PROJECT**

### ***Identification of the Example***

#### Key issue addressed

Revenue sharing

#### Integration

2002 Agreement Concerning a New Relationship between the Government of Québec and the Crees of Québec (the “Paix des Braves” Agreement)

#### Implementation

- Eastmain-1 Project
  - Project owner: Hydro-Québec
  - Construction period: 2002-2007
- Eastmain-1-A and Rupert Diversion Project
  - Project owner: Hydro-Québec
  - Feasibility studies completed
  - Construction period: 2007-2011

#### Stage regarding the project life cycle

Planning, operation

### ***Description of the Framework***

#### Country institutional set up

The Province of Québec is located in the federative state of Canada which is governed by a democratic parliament headed by a Prime Minister. Each of its ten provinces and three territories have a high level of autonomy. Hydroelectric projects built in each province are subject to provincial environmental regulations unless it concerns an aboriginal territory or a special status territory. Aboriginal or Native population represent a small percentage of the Canadian population but many communities have unsettled land claims and they often occupy and use remote territories where hydroelectric projects are planned.

Hydro-Québec is an electricity producer and a major North-American distributor owned by the government of the province of Québec. Its generating facilities have an installed capacity of some 34,000 MW, with hydropower producing 96% of its total energy output.

## The “Paix des Braves” Agreement

In 1971, the Premier of Québec announced a major hydroelectric development project in the James Bay area (the project which eventually became the La Grande complex), in the heart of a vast region occupied by Northern Québec’s indigenous communities. This hydroelectric development project raised the issue of the Aboriginal rights and land claims of about 5,000 Crees, 3500 Inuit and 400 Naskapis who in 1971 inhabited the James Bay region and Northern Québec.

On November 11, 1975, the *James Bay and Northern Agreement* (JBNQA) was signed by the Government of Canada, the Government of Québec, Hydro-Québec, the James Bay Energy Corporation (a subsidiary of Hydro-Québec), the James Bay Development Corporation, the Crees and the Inuit. The JBNQA took two years of exhausting, intense, high-level negotiation to hammer out. Since then, this Agreement has shaped relations not only between Hydro-Québec and the Crees but also with other Indigenous nations throughout the Province of Québec.

The JBNQA is a landmark agreement in Aboriginal land and land-use claims. It established mechanisms for mitigating the environmental impacts of hydroelectric projects and activities and for supporting traditional economic pursuits. However, the Agreement was first and foremost a social contract between Aboriginal nations and the Government. As a matter of fact, only one chapter actually deals with hydroelectric development.

Many Crees nonetheless believe that they signed the JBNQA under duress, making the best of a bad situation. In addition, the Crees were not happy with the implementation of the Agreement in the 25 years following its signing. A sociopolitical climate of mistrust and of frustration with the Government and with developers, namely forestry companies and Hydro-Québec, set in, and a series of legal proceedings were filed against the Government and developers in this period. This climate of mistrust did not, however, prevent the parties from amending and modifying the JBNQA. A total of 12 amendments were adopted between 1975 and 2001, and Hydro-Québec signed six impact and benefit agreements concerning additions and modifications to the La Grande complex.

In the late 1990s, Hydro-Québec wanted to begin working on a hydroelectric development, the 480 MW Eastmain-1 project, that was provided for in the JBNQA but had never been built. The project had been the subject not only of legal proceedings launched by the Crees but also of meetings and negotiations between the Crees and Hydro-Québec. However, the parties did not reach an agreement on the project and the carrying out of the Eastmain-1 project was postponed.

In 2001, negotiations were taking place between the Government of Québec and the Crees to solve their dispute about the implementation of the JBNQA. The Crees still had unsettled multi-billion dollar lawsuits pending against the Government of Canada, the Government of Québec and developers such as Hydro-Québec and forestry companies.

On October 21, 2001, the Crees and the Government of Québec announced that they had reached an agreement-in-principle for settlement of their disputes (known as the "Paix des Braves") and for financial provisions of \$CAN 3.5 billion over a 50-year period. This agreement-in-principle also contained provisions regarding hydroelectric, mining and forestry development, including Cree consent to construction of the Eastmain-1 project as defined in 1975 in the JBNQA and to the start of construction upon signing of the final agreement. The Crees also consented to the carrying out of the Eastmain 1-A/Rupert project (variant 314), provided the project was subjected to the environmental and social protection regime and provisions under Section 22 of the JBNQA.

Under the terms of the "Paix des Braves" Agreement, the Cree Nation of Québec benefits from annual payments of at least C\$70 million over a period of 50 years to cover their economic and community development needs. These annual payments correspond to a transfer of provincial government obligations and related funding under the terms of the JBNQA to the Cree Nation of Québec. They constitute a recognition of the Cree communities' right to govern themselves and aim to support the trend towards governmental autonomy for Québec's Indigenous communities.

In addition, from 2005 to 2052, annual payments of C\$70 million provided for under the Agreement will be indexed according to the value of natural resources extracted from Cree territories. This also constitutes a recognition of the rights of Cree communities to have a say in the management of hydropower, mining and forestry resources on their territories and to share directly in the benefits of new resource-based development projects on the territory administered under the rules of the JBNQA. Chapter 7 of the Agreement defines the method to be used to establish the yearly indexation rate of benefits starting in 2005. The indexation rate is defined as the average annual value of hydropower production and of mining and forestry extraction from Cree territories over the last five years, divided by one third the total value of hydropower production and of mining and forestry extraction from Cree territories between 1999 and 2003 less the yearly maximum and the yearly minimum production values for the same reference period. A five-year annual average is divided by a three-year annual average.

In sum, if the post-2005 average yearly values of hydropower production and of mining and forestry extraction from Cree territories are higher than the pre-2005 average yearly values of hydropower production and of mining and forestry extraction, the annual payments of C\$70 M provided for under the Agreement will be increased according to the corresponding rate of increase in such values.

Under the terms of the "Paix des Braves" Agreement, the Crees give their consent to construction of the Eastmain-1 hydropower dam and consent to the carrying out of the Eastmain-1-A/Rupert diversion project subject that the project go through the applicable environmental legislation and to the environmental and social protection regime stipulated in Section 22 of the JBNQA. In return, start-up of operations of the Eastmain-1 hydropower dam after 2006 should result in increased annual revenues for all of the communities governed by the Cree Nation of Québec. These revenues will be substantially increased in the event of federal and provincial government approval and subsequent start-up of operations of the Eastmain-1-A/Rupert diversion project.

### Organisational set up

The Eenou-Eeyou Limited Partnership, a partnership of the nine Cree Bands, was set up in March 2002 pursuant to the Civil Code of Québec. Funding of the Partnership is the recipient of the annual payments made out under the terms of the "Paix des Braves" Agreement. The purposes of the Partnership are set out as follows:

- to receive, manage and invest any of the annual capital payments made by the government of Québec;
- to use, allocate or distribute these annual capital payments in accordance with the spirit and relevant provisions of Chapter 7 the Agreement, i.e. "the economic and community development of the James Bay Crees , ... , including support for Cree traditional activities and the creation of a Heritage Fund for the benefit of James Bay Cree bands."

The "Paix des Braves" Agreement includes monitoring mechanisms that apply both to the Government of Québec and to the Crees, as well as a conflict resolution mechanism in case of disagreements concerning the indexation rates applied to yearly payments paid by the Government of Québec to the Cree Nation of Québec. The Eenou-Eeyou Limited Partnership produces detailed annual reports describing the expenses covered by the funds provided by the provincial government.

### Implementation history

The "Paix des Braves" was signed in 2001 and is being implemented. Implementation includes the annual payment of C\$70 million provided for under the Agreement which is indexed according to the value of natural resources extracted from Cree territories.

## ***Description of the Example***

### Project description

The Eastmain-1 project, as contemplated in the JBNQA, called for a powerhouse with three generating units and an installed capacity of approximately 480 MW (2.7 TWh). Design flow will be approximately 840 m<sup>3</sup>/sec and rated head about 63 m. The main dam will be roughly 890 m long and 70 m high. The reservoir at maximum level will encompass an area of about 603 km<sup>2</sup>; its annual drawdown will be approximately 9 m. To construct the project, a temporary camp was built, as well as a permanent access road about 80 km long. The powerhouse will be integrated into the power transmission system via a 315-kV power line about 70 km long. Work began in spring 2002 and should be completed in 2007.

In addition to the construction of the Eastmain-1 dam, a new Eastmain-1-A and Rupert diversion project which called for two powerhouses, one with three generating units and an installed capacity of 768 MW and another one, La Sarcelle powerhouse, with an installed capacity of 125 MW. The new project involves the partial diversion (about 450 m<sup>3</sup>/s) of the Rupert river, a river with an average annual flow of about 870 m<sup>3</sup>/s that has great cultural value for the Crees. Because the diverted water from the Rupert river would be transferred hundreds of kilometers further north towards the

mouth of the La Grande river, the areas potentially affected by this project involved sections of the territories of six of the nine Cree communities in the James Bay region. The combined Eastmain-1 dam and Eastmain-1-A/Rupert diversion project would represent up to 8.5 TWh/year of additional power to the provincial power grid. The project has been reviewed under the environmental assessment procedures set forth in Section 22 of the *James Bay and Northern Québec Agreement* (JBNQA) and Chapter 22 of the *Environment Quality Act*, as well as the *Canadian Environmental Assessment Act*. The Québec Government granted Hydro-Québec with the necessary authorizations. The Canadian Government is favourable to the project and should grant Hydro-Québec with its authorizations in early 2007.

### Implementation

Over a period of four years starting in 1997, Hydro-Québec held information sessions in Cree communities that would be directly affected by the Eastmain-1-A and Rupert diversion project. Informal meetings were held between Hydro-Québec senior managers and Cree leaders to see if, within the framework of a partnership, the Crees would be interested in investing in the newly proposed Eastmain-1-A/Rupert diversion project and receiving their share of the revenue and profits from the project. Technical investigations required for the project were carried out jointly by Hydro-Québec and Cree communities.

Hydro-Québec's new approach of not trying to impose the project but rather of seeking Cree acceptance within the context of a partnership was well received. Chiefs of Cree communities that would be affected by the new proposed project invited Hydro-Québec representatives to informally meet with them and their members in public assemblies. These meetings also provided an opportunity for the Crees to have their voices heard. At times, certain Crees were very vocal against the proposed project, but Hydro-Québec always maintained that it would not impose the project against the will of the Cree communities. Although by 2001, Hydro-Québec had not yet received a response to their proposal from the Crees, they never received a flat no from the Cree leadership.

It was in the new sociopolitical context of the "Paix des Braves" Agreement that the Crees and Hydro-Québec finalized negotiations on the terms of the *Nadoshtin Agreement* in connection with the Eastmain-1 project and of the *Boumhounan Agreement* in connection with the Eastmain 1-A/Rupert project, as well as seven other agreements in connection with past obligations of Hydro-Québec. Those nine agreements were signed on February 7, 2002 by Hydro-Québec, and by the Grand Council of the Crees of Québec (GCC) and the 9 Cree Chiefs, at the same time that the "Paix des Braves" was signed. Under the terms of the *Boumhounan Agreement*, the Crees gave free, prior and informed consent to pursue the construction, operation and maintenance of the Eastmain-1-A/Rupert project in a manner respectful of the Cree way of life and the environment. The project will be subject to a stringent impact assessment regime in which the Crees are represented along with the provincial and federal governments.

The *Boumhounan Agreement* signed in connection with the Eastmain 1-A/Rupert project call for remedial measures, economic and community benefits such as training, employment, contracts, environmental guarantees, commitments and

undertakings, and the creation and financing of a joint study group to conduct the Environmental and Social Impact Assessment in connection with the project, including hiring of Cree coordinators and representatives and opening of fully equipped project coordination offices in Cree communities affected by the project. Monetary compensation in connection with hydroelectric, mining and forestry development is covered in the financial provisions of the "Paix des Braves" Agreement with the Government of Québec.

### Outcomes

According to the annual reports of the Eenou-Eeyou Limited Partnership, the annual payments received from the Government of Québec have been used mostly for community development. It is expected that the economic development component will increase in future years. A Heritage Fund, the Wyapschinigun Fund, was also set up to ensure that the benefits derived from the Agreement will permit the establishment of a long-term financial base for the future development of the Cree Nation. The Fund receives 15% of the Government of Québec contributions which will be invested on a long-term basis for the life of the Agreement. The Agreement was signed recently and it is still too early to fully evaluate the outcomes of the use of the payments. Follow-up studies would be required in future years to determine the performance of the projects and measures financed by the Eenou-Eeyou Limited Partnership<sup>14</sup>.

### Assessment of outcomes by involved stakeholders

Before the signing of the Nadoshtin and Boumhounan Agreements, a wide-ranging consultation of the Cree people, conducted by the Crees, took place and a Cree nationwide referendum was held. The Crees came out in large numbers for the vote: 4,479 Crees participated in the referendum. By way of comparison 3,398 Crees voted in 1999 to elect the Grand Chief of the Crees and 2,379 Crees voted in the Canadian federal election in 2000. Of those who voted in the referendum, 69.35% voted for the signing of the agreements and 30.65% voted against.

### **Overall Conclusions**

The benefit sharing mechanism put into place under the terms of the "Paix des Braves" Agreement is much more comprehensive than a simple revenue sharing scheme designed for a hydropower project. It covers all forms of development of natural resources on the Cree territory, including hydropower. It constitutes a recognition of the Cree communities' right to govern themselves and aims to support the trend towards governmental autonomy for Québec's Indigenous communities. It also constitutes a recognition of the rights of Cree communities to have a say in the management of hydropower, mining and forestry resources on their territories and to share directly in the benefits of new resource-based development projects on their ancestral lands.

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<sup>14</sup> Such studies have already started up for the Eastmain-1 dam and the corresponding Nadoshtin Agreement.

The annual payments referred to under the terms of the Agreement are made out by the Government of Québec (and not by utilities or mining or forestry companies) and are destined to the Eenu-Eeyou Limited Partnership, a partnership of the nine Cree Bands. However, most of the Crees have been affected in one way or another by hydroelectric developments in the James Bay territory.

In addition, there is no explicit relation to the economic rent associated with hydroelectric projects in the benefit sharing formula. However, the mechanism reflects the recognition by the Government of Québec of a right for the Crees to receive royalties for the exploitation of natural resources in their territory. It also reflects the intention by both parties to use these funds for the economic development of the Cree people,

Under the terms of the "Paix des Braves" Agreement, the Crees will use the funds provided under the Agreement largely for the implementation of Québec's obligations to the Crees under Section 28 of the JBNQA which refers to the socio-economic development of the Cree Nation. It is still too early to evaluate the outcomes of the use of these funds. Follow-up studies would be required to determine the performance of the projects and measures financed by these funds.

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## **5.9 CHINESE LEGISLATION ON POST RESETTLEMENT AND REHABILITATION FOR HYDROPOWER PROJECTS: THE SHUIKOU PROJECT**

### ***Identification of the Example***

#### Key issue addressed

Revenue transfers from the power sector to regional and local authorities, used for regional development and to provide additional long-term compensation to project-affected populations

#### Integration

Land Administration Law (1986)

Regulation on later stage support fund (1991, revised in 1996)

#### Implementation

- Shuikou hydroelectric project, China
- Project owner and executing agency: Fujian Provincial Electric Power Bureau
- Agency responsible for resettlement implementation: Shuikou Reservoir Resettlement Office (SRRO)
- Construction period: 1987-1996

#### Stage regarding the project life cycle

Project operation

### ***Description of the Framework***

#### Country Institutional set up

The People Republic of China is a socialist republic governed by a one party communist regime established in 1949. The country counts 22 provinces, five autonomous regions and four big municipalities considered as provinces (Beijing, Shanghai, Tianjin and Chungqing). The provinces are divided into municipalities that are in turn divided into districts in urban areas and into counties in rural areas. Each county is divided into villages, which were formerly known as collectives and can be made up of a number of small villages. Under the Chinese system, government authorities down to the county level are considered to be part of the Chinese government.

The Shuikou Hydroelectric Project was built in the 1980s and 1990s at a time of change in China. In the 1980s, China was in the process of developing a socialist market economy and in the beginning of the 1990s the country started opening up to the world economy with the development of Special Economic Zones along the coast.

China is currently trying to operate a slow change in its political and economic structure in order to preserve political and social stability.

Before 1949, China had no more than 40 small hydroelectric dams and only a few large-scale reservoirs. Starting in the early 1950s, experience and capacity in dam design were gradually built. China had technology transfer programmes with other countries such as Russia and the size and complexity of the dams increased. During the period from the mid-1960s to the late 1970s, most of China's dams were built. By 1985, the state-organized campaigns for electricity, irrigation and flood control succeeded in building 70,000 dams and 80,000 reservoirs. Of these waterworks, 300 dams and 340 reservoirs are built on a large scale (Jun Jing, 2000).

In 1952, China issued a set of resettlement regulations that, if followed, might have led to reasonably successful outcome for some major projects of the time such as Danjankou and Sanmexia. However, these regulations were abandoned during the Great Leap Forward (1958-1960) and the Cultural Revolution (1966-1976). During this period, the emphasis was on the engineering aspects of dam projects and little consideration was paid to social issues and the fate of the resettled people. Central directives stressed the necessity of relinquishing individual, community and even regional concerns and highlighted the expectations of long-term gains for the country as a whole vis-à-vis what was perceived to be only temporary losses in the project-affected areas (Jun Jing, 2000).

#### Legislation on Reservoir Development Funds

This situation began to change in 1981 following mounting pressures from relocated people and local governments. In the decade that followed, the Chinese government put forward a "resettlement with development" policy which included measures that aimed at local development and improving the livelihood of resettlers in the post-relocation phase. In particular, Chinese authorities issued guidelines and legislation to address outstanding problems resulting from previous reservoir-induced relocation and to provide for an appropriate framework for involuntary resettlement and economic rehabilitation of resettlers rehabilitation in new projects. Among various mechanisms put in place by the Chinese authorities, the establishment of Reservoir Development Funds stand out as an important measure designed to help resettlers develop new production systems in the relocation areas and resolve outstanding problems. The main guidelines and legal documents providing a framework for the establishment of these funds are described below<sup>15</sup>.

- Reservoir Maintenance Funds for Hydropower Projects (1981): In 1981, the Ministry of Finance and the Ministry of Electric Power issued a decree establishing guidelines for the setting up of Reservoir Maintenance Funds from electricity sales to assist all reservoir resettlers from the 1950s onward who were still lagging behind average rural incomes. The fund was financed on the basis of 0.001 Yuan/kWh (0.012 US cents/kWh) for the life of the hydropower plant. These funds are managed by local county resettlement offices and Hydropower Plant Authorities. They must be used for:

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<sup>15</sup> A large part of the information on Post Resettlement Rehabilitation Fund for Hydropower Projects was kindly provided by Mr Chaohua Zhang, World Bank.

- 1) maintaining reservoir facilities;
  - 2) maintaining infrastructures used for irrigation and drinking water and of transportation infrastructures benefiting resettlers;
  - 3) providing economic support to the populations displaced by the reservoir.
- Post Resettlement and Rehabilitation Fund for Irrigation Projects (1985): In 1985, the State Council issued a decree to allow for the setting up of Development Funds for irrigation projects. Under this decree, the water charge can include an amount used to finance a Post Resettlement and Rehabilitation Fund..
  - Land Administration Law (1986): The Land Administration Law, issued in 1986, includes provisions to develop regulations on reservoir-induced resettlement. The first regulation was issued by the State Council in 1991 for large and medium-size water conservation and hydroelectric projects. It includes a provision on the establishment of a reservoir construction fund to finance resettlement site maintenance and production development. This regulation was revised in 1996 and is presently in force.
  - Later Stage Support Fund for Hydropower and Water Conservancy Projects (1991, revised in 1996): The 1996 regulation was issued by the State Planning Commission, the Ministry of Finance, the Ministry of Hydropower and Industry and the Ministry of Water Resources. It concerns all hydropower projects that were commissioned between 1986 and 1995 as well as all new hydropower and water conservancy projects cleared for construction after 1996. All these projects must set up a Later Stage Support Fund to help resettlers develop new production systems and resolve outstanding problems. The Fund is established for 10 years and is financed from power sales. Each province sets a uniform rate for all funds corresponding to reservoirs located in its territory on the following basis:
    - 1) the number of resettlers as determined in the Resettlement Plan approved by the State;
    - 2) the rate must correspond to an amount from 250 to 400 Yuan per year per resettler, taking into account physical losses due to reservoir impoundment, total electricity production, the seriousness of the problems encountered by resettlers and the standard of living in the area;
    - 3) the rate must be from 0.001 to 0.005 Yuan/kWh (0.012 US cents/kWh to 0.06 US cents/kWh).

### Organisational set up

All Funds within a province that are established under the Legislation on Reservoir Development Funds are managed by the Provincial Resettlement Bureau. This Bureau is responsible for allocating the amount of money provided by the Funds.

### Implementation history of the Legislation on Reservoir Development Funds

As described above, Chinese authorities have promulgated decrees and laws on reservoir development funds since the beginning of the 1980s. No information could be found on how this legislation is enforced at the level of each province and project.

## ***Description of the Example***

### Project description

The Shuikou dam and hydroelectric power plant is located in Minqing County, Fujian Province, People's Republic of China, in the middle reaches of the Min River (Minjiang). The project site is 84 km upstream of Fuzhou, the provincial capital. The main purpose of the Shuikou project is power generation. The total installed capacity is 1,400 MW, making it the largest hydroelectric plant in the East China Region. The average annual energy generated is 4,950 GWh. In addition to power generation, the project also includes a shiplock and a shiplift to maintain navigational capability and capitalize on the improved navigational potential created by the reservoir (surface area: 94 km<sup>2</sup>) and the regulated river downstream of the dam.

The Shuikou project was approved by the State Planning Commission in 1985 and construction started in March 1987. The first generating unit was commissioned in July 1993 and all seven units were in operation by December 1996.

The Project involved the displacement of over 67,000 rural and 17,000 urban people over a six-year period between 1988 and 1993. Resettlement implementation was the responsibility of the Fujian Provincial Government (FPG). In 1986, FPG established a permanent organisation, the Shuikou Reservoir Resettlement Office (SRRO), responsible for all resettlement operations for the project.

### Implementation

In addition to the establishment of policies and standards and the institutional framework for resettlement, the Fujian Provincial Government took various measures to facilitate the economic rehabilitation of the resettlers, in particular the adoption in 1987 of 17 preferential policies for Shuikou resettlement. These policies include the establishment of a Reservoir Development Fund to provide low-interest loans to assist economic rehabilitation efforts in the affected counties and townships. For these purposes, a total of 50 million Yuan was drawn over a period of five years from provincial budget and tax revenues. This Fund was established prior to the 1991 regulation on reservoir-induced resettlement. It was not tied to electricity sales and aimed at rehabilitation efforts during dam construction.

On February 2, 1995, in accordance with the national 1991 regulation, Fujian Province established a 10-year Shuikou Reservoir Maintenance and Construction Fund (or Later Stage Support Fund). The Fund is financed from power sales at a rate of 0.004 Yuan/kWh, which was increased to 0.005 Yuan/kWh in 1996 following the revised regulation. The Shuikou Reservoir Resettlement Office (SRRO) received 10 million Yuan (US\$ 1.2 million) in 1995, 20 million Yuan (US\$ 2.4 million) in 1996 and 20 million Yuan (US\$ 2.4 million) in 1997. SRRO had the discretion to determine allocations from the Fund. It considers that for the first few years, about half should go toward infrastructure improvement, with the remainder toward improvement of production measures. After the initial period, the Fund would generally be allocated to production measures (Youxuan *et Al.*, 1999).

## Outcomes

No follow-up studies on the performance of the Later Stage Support Fund could be found. However, a World Bank 2000 study on the resettlement process at Shuikou (Youxuan *et Al.*, 1999) indicates that interest-free loans obtained from the Reservoir Development Fund that was established in 1987 was one source of investment in local township and village enterprises. Other sources of investment were varied and included: compensation for enterprise relocation, land compensation earmarked for economic rehabilitation, savings from individual resettlers, village and township budgets, outside investors and bank loans. Local governments were actively involved in supporting and facilitating new investments. However, existing information does not evaluate the importance of interest-free loans from the Fund in investment decisions.

It is interesting to note that, beyond tax incentives, the provision of electricity at a subsidised price to each affected township and village (500 kWh per year per resettler) is one of the reasons cited by newly established enterprises for setting up in the Shuikou area (Youxuan *et Al.*, 1999).

## Assessment of outcomes by involved stakeholders

No information could be found on the assessment of the Shuikou Later Stage Support Fund. After an extensive review, the World Bank's Operations Evaluation Department concluded in 1998 that "the Shuikou resettlement has generally been successful in generating sufficient employment and restoring the incomes and livelihoods of resettlers". However, this review did not include an assessment of the performance of the Fund.

## **Overall Conclusions**

The 1991 regulation establishing Post Resettlement and Rehabilitation Funds (revised in 1996) recognizes that, even with well-planned resettlement, remedial measures still have to be taken beyond the end of the relocation period to address outstanding issues. It also demonstrates the commitment of Chinese authorities to achieve full restoration of the livelihood of the resettled people. Even in the case of a project that stands as an example of successful resettlement such as Shuikou (Zhu *et Al.*, 2000), such a fund has been set up and funding was provided on the basis of the maximum allowed rate.

Later Stage Support Funds have been set up on a number of projects. However, no follow-up studies that evaluate the performance of such funds could be identified.

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## **5.10 HUBEI HYDROPOWER DEVELOPMENT IN POOR AREAS**

### ***Identification of the Example***

#### Key issue addressed

Partnership agreement using equity sharing and revenue sharing  
Funding of poverty alleviation plans

#### Integration

Western Region Development Program

#### Implementation

- Dongping, Najitan, Songshuling and Xiakou hydropower plants
- Developers: county-registered limited liability companies
- First units commissioned in 2006

#### Stage regarding the project life cycle

Project construction and operation

### ***Description of the Framework***

#### Country Institutional set up

The People Republic of China is a socialist republic governed by a one party communist regime established in 1949. The country counts 22 provinces, five autonomous regions and four big municipalities considered as provinces (Beijing, Shanghai, Tianjin and Chungqing). The provinces are divided into municipalities that are in turn divided into districts in urban areas and into counties in rural areas. Each county is divided into villages, which were formerly known as collectives and can be made up of a number of small villages. Under the Chinese system, government authorities down to the county level are considered to be part of the Chinese government.

Until the early 1980s, China's power systems were entirely government-owned. For the most part, power was provided through a centralized government department with operating units at the province, prefecture (or municipality) and county levels. However, because not all rural areas were connected to the grids, local systems were also set up and managed at the county level and even at local government levels (township and village).

Over the last two decades there have been great changes in the power sector in China. The sector is now largely corporatized and its ownership is diverse; budget allocations have been phased out, subsidies eliminated and electricity prices are in line with or above marginal supply costs in most grids. This has enabled the sector to grow

dramatically with installed capacity and generation quadrupling to over 350 GW and about 1,900 TWh in 2003. China's power sector is by now the second largest in the world, and supply and demand are basically in balance. The government intends to introduce and expand competition, starting with generation in the short term and eventually extending to retail competition in the longer term (5 to 10 years).

### Western Region Development Program

China's power sector has long been dominated by coal-fired generation with concomitant large emissions of SO<sub>2</sub>, NO<sub>x</sub> particulates and greenhouse gases with consequent adverse impacts on health, agricultural production, and global warming. One measure taken to reduce these emissions is to accelerate the development of small hydropower and non-traditional renewable energy sources.

The Government has embarked on a Western Region Development Program to reduce poverty and regional inequality, conditions that are perceived to threaten national social stability. Development of hydropower and other renewable resources are viewed as particularly beneficial in this regard, since such sources of power are usually located in mountainous terrain or remote areas. This type of rural environment, which is generally characterized by scarcity of agricultural land and difficulty of access, is also a primary determinant of poverty. The entire western area of Hubei is classified as a poverty area. It includes 25 national-level poverty counties (the poorest of the poor deserving the attention of the central government) and four provincial-level poverty counties. Three of the four project counties are national-level poverty counties and the fourth is a provincial-level poverty county.

The Hubei Hydropower Development in Poor Areas Project which was developed within the framework of the Western Region Development Program has three objectives:

- a) expand power generation capacity in Hubei in an economically and environmentally sustainable manner in order to facilitate economic growth;
- b) enhance the efficiency of the electricity sector in Hubei by commercialising county level generation companies;
- c) contribute to poverty alleviation efforts in poor communities in Hubei.

The Project does not explicitly include a monetary benefit sharing mechanism. However, as described below, several characteristics of the project constitute a partnership agreement type of benefit sharing mechanism.

### Organisational set up

No information could be found on the organisational set up used for implementation, enforcement and monitoring of the framework.

### Implementation history

No information could be found on the implementation history of the framework.

## **Description of the Example**

### Project description

As part of the Hubei Hydropower Development in Poor Areas Project, four hydropower plants and dams are being built in four different counties. Some of the units were commissioned in 2005. Their characteristics are summarized in the following table (World Bank, 2002).

<b>Project Component</b>	<b>County</b>	<b>Construction</b>	<b>Installed capacity (MW)</b>	<b>Number of persons resettled</b>	<b>Cost (US\$ M)</b>
Dongping	Xuan-en	<ul style="list-style-type: none"> <li>• 134 meter dam</li> <li>• Underground power house</li> <li>• Substation and transmission line</li> </ul>	110	3,047	86.19
Najitan	Laifeng	<ul style="list-style-type: none"> <li>• 39 meter dam</li> <li>• Surface power house</li> <li>• Substation and transmission line</li> </ul>	36	2,565	42.40
Songshuling	Zushan	<ul style="list-style-type: none"> <li>• 65 meter dam</li> <li>• Surface power house</li> <li>• Substation and transmission line</li> </ul>	50	465	86.19
Xiakou	Nanzang	<ul style="list-style-type: none"> <li>• 85 meter dam</li> <li>• Surface power house</li> <li>• Substation and transmission line</li> </ul>	30	1,043	32.54
<b>Total</b>			<b>226</b>	<b>7,120</b>	<b>203.45</b>

### Implementation

Each hydroelectric plant is developed by a new limited liability company whose sponsor is a county-owned generation company. These companies will have direct responsibility for implementation and ultimately own and operate the respective hydropower plants. The ownership of the power plants is diverse but, in general, shareholders are power generation or power financing companies owned by provincial, municipal and county governments.

However, the Hubei Government recognizes that in the current state of development of the power industry at the county level and below, projects of the contemplated size cannot be developed without strong government support. Therefore, the Hubei Provincial Government has accepted the role of overall sponsor and executing agency for the project. The Hubei Provincial Planning Commission, which has a role in alleviating poverty in poor areas of the province, has taken the project lead in obtaining central government support for a World Bank loan., and subsequently in project preparation. The World Bank will finance 47.2% of the total investment

required for the project. The remaining financing will come from local and provincial government and local banks.

Electricity from each plant will be sold to the provincial power grid at a price subject to approval by the Provincial Pricing Commission and ultimately by the State Development Planning Commission. The procedure represents a cost plus approach with a reasonable return on equity of 4 % higher than interest rates for long term loans.

The project has two characteristics which can be considered as benefit sharing mechanisms:

- 1) Through its share in the equity of the county-registered limited liability company, each county government will be entitled to part of the profits of the company.
- 2) Each of the project counties will devote 20% of the fiscal revenues accruing from the operation of their respective plants for at least five years after commissioning to funding county poverty alleviation plans. Fiscal revenues include an income tax (33% of project net income) and a quarter of the value added tax (bulk supply tariff includes 17% VAT).

A financial analysis carried out by the State Power Economic Research Center shows that returns on equity invested by county owned power generation companies will be high, in the range of 15 to 25 % per year in real terms. Returns to the counties would be even larger if the current power pricing formula were to be altered to an avoided cost approach, or if the tax regime were adjusted to provide for a resource tax which captured the economic rent. Fiscal revenues are also expected to be high. They would amount to 20 to 61 % of total funds directed to poverty alleviation in the four counties.

The project will thus clearly boost revenues in the affected counties, and according to the World Bank Project Appraisal Document, past results demonstrate the capability of the counties to effectively utilize poverty alleviation funding. Studies in the project area indicate the potential for improvement of poverty alleviation efforts in line with the new strategy being initiated at the central government level. The project includes a component to prepare poverty enhancement plans for each of the four host counties using similar methodologies to those developed for other pilot counties in Hubei.

### Outcomes

Only some of project component units were commissioned at the time of writing this report. It is thus too early to evaluate the performance of the county-owned generation companies, the revenues received by the project counties as well as the outcomes of the use of these revenues.

### Assessment of the outcomes by involved stakeholders

The preparation of the environmental assessments and resettlement plans of each project included a public consultation and disclosure process. All organizations within the project-affected areas indicated strong support for the respective projects, primarily because it is believed that the projects will contribute much-needed

economic development within each of the four counties, thereby helping to alleviate poverty.

### **Overall Conclusions**

The establishment of county-registered limited liability companies and the partial funding of county poverty alleviation plans through fiscal revenues are not presented and justified as a redistribution of the project economic rent to project-affected populations. However, since county governments are shareholders of the county companies, such companies can be viewed as the result of a partnership agreement based on equity sharing. Likewise, fiscal revenues based on a percentage of power sales are a form of revenue sharing. These mechanisms do not target specifically project-affected people, although the latter are part of the county population. Project-affected people may thus benefit directly from poverty alleviation plans as well as from infrastructure and services partially paid from profits of the county owned power generation companies.

It is worth noting that several measures have been taken to support local governments in setting up the county enterprises, which should ensure the technical feasibility of the project as well as its financial viability. In addition, county poverty alleviation plans will be developed based on an evaluation of current poverty alleviation efforts in other pilot counties in Hubei.

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<sup>16</sup> Updated information on the Project has been kindly provided by Mr. Jie Tang, Energy Specialist, World Bank.

## **5.11 NEPALESE LEGISLATION ON THE PAYMENT OF ROYALTIES TO DISTRICTS AND VILLAGES: THE KALI GANDAKI HYDROPOWER PROJECT**

### ***Identification of the Example***

#### Key issue addressed

Revenue transfers to provide additional long-term compensation to project-affected populations

#### Integration

1992 Electricity Act

1999 Local Self-Governance Act and Local Self-Governance Regulations

2001 Hydropower Development Policy

#### Implementation

- Kali Gandaki Hydropower Project
- Project owner and executing agency: Nepal Electricity Authority
- Construction period: 1997-2002

#### Stage regarding the project life cycle

Operation

### ***Description of the Framework***

#### Country institutional framework

Nepal's population of just over 24 million (in 2003) is divided in equal proportion between the flat plains of the Terai in the south of the country, which border India, and the foothills and mountains of the high Himalayan range in the north, which border the high Tibet plateau. The country has one of the lowest per capita incomes and rate of commercial energy use in South Asia. Disparity in access to electricity is stark: over 90% of the urban population is connected, in contrast to an estimated 30% in rural areas.

With many steep rivers fed by a combination of snowmelt, winter rains and torrential monsoon rains, Nepal has a vast hydropower potential of approximately 40,000 MW of economically feasible hydropower potential. Less than 1.5% has been developed (about 600 MW). Electricity fulfills only 1% of the energy need in Nepal. The bulk of energy consumption is dominated by fuel wood (68%), agricultural waste (15%), animal dung (8%) and imported fossil fuel (8%) (IPPAN, 2006).

In 1992, Nepal adopted a national hydropower development policy with the following four objectives. First, to supply electricity by exploiting the high potential of water resources. Second, to enhance hydropower to meet industrial needs. Third, to promote national and foreign private sector investment in hydropower development. Fourth, to conserve the environment by supplying clean hydropower (SEA Drafting Group, 1997).

#### Payment of royalties to district and villages

The 1992 Hydropower Policy in Nepal and the 1992 Electricity Act have also required hydropower projects above 1 MW to obtain a license and pay royalty to the government. However, they did not specify how the amounts received should be used. In 1999, the Local Self-Governance Act and Local Self-Governance Regulations recognized the necessity to redistribute part of the royalty to communities in the vicinity of the project since these communities contribute to the project benefits by sacrificing their access to or use of land and other resources in the project-affected area. The regulations require that the central government allocate 10% of the hydropower royalty to districts where the hydropower project is located.

In 2004, the second amendment of the Self-Governance Regulations increased the district's share of the royalty to 12%. It also required the central government to distribute another 38% of the hydropower royalty among districts of the development region where the hydropower project is located.

In addition, the 2001 Hydropower Policy specifies that 1% of the royalty shall be provided to the Village Development Committees (VDC) that are directly affected by the hydropower infrastructure with the sole purpose of expanding village electrification of these VDCs.

Depending on the size of the project, the royalty rate goes from Rs. 100 to Rs. 200 per kW (US\$ 1.3 to US\$ 2.6), plus from 1.75% to 2% of project revenues per kWh for the first 15 years. After 15 years of commercial operation, the royalty goes up to from Rs.1000 to Rs. 1,500 per kW (US\$ 13 to US\$ 20) plus 10% of the project revenues per kWh. The amount of royalties received by the central government increased significantly from fiscal year 2000-2001 to fiscal year 2003-2004 as shown in the following table:

Year	Royalty		Percentage of government revenues
	Rs.	US\$	
2000-2001	579,649,499	8,100,000	1.19
2001-2002	615,559,530	8,000,000	1.22
2002-2003	738,883,333	9,500,000	1.31
2003-2004	912,962,130	12,200,000	

Source: Upadhyaya, 2006

In certain districts, the royalty represents a significant proportion of total revenues. For instance, in fiscal year 2001-02, hydropower royalties represented 65% of the revenues of the Makawanpur District Development Committee (DDC) (Uppadyaya,

2006). The legislation does not specify how such amounts should be spent and how it should be distributed within a district. It only specifies that they must not be spent for administrative purposes.

#### Organisational set up

Royalties are paid by project developers to the government which redistributes part of them to districts and VDCs. No other information is available on the organisational set up adopted by the government to implement this framework.

#### Implementation history

As described above, the legislation on the payment of royalties to districts and VDCs has evolved since its promulgation in 1999. The share of the royalties received by regional and local authorities increased from 10% to 50% of the royalties paid by hydropower projects.

### ***Description of the Example***

#### Project description

The Kali Gandaki Hydroelectric Project is located in the Western Development Region of Nepal. The main component of the project is located in Syangja District in Gandaki Zone and other components partially encompasses other districts such as Gulmi, Palpa and Parbat. The Kali Gandaki Project is a daily pondage type scheme with an installed capacity of 144 MW and a production of 842 GWh. The construction of the project lasted from 1997 to 2002. The first 48 MW generation unit was commissioned in March 2002, the second one in April 2002 and the third one in May 2002. The major project components are the hydropower plant and associated facilities, the access road and the 132 kV transmission line to Pokhara and Butwal. The project is owned and operated by Nepal Electricity Authority (NEA). NEA is an undertaking of the government of Nepal and is the largest corporate body responsible for power generation.

The implementation of the Kali Gandaki "A" Hydroelectric Project required the acquisition of about 148.62 ha of land and assets. 1468 families lost their land (or part of it), their houses, or both.

#### Implementation

The royalty paid by NEA has been distributed among four affected districts as follows:

- Syangja: 47%
- Gulmi: 28%
- Palpa: 15%
- Parbat: 10%

The revenue is to be used for local development works within the affected area of the project. If needed, further allocation from the royalty should be used for long term mitigation and monitoring programs at the project site (ESSD-NEA, Undated).

No follow up study on the distribution of such funds among concerned VDCs, on projects and measures that have been carried out and on stakeholders viewpoints could be found.

About 3,000 households in 11 VDCs in the project area have benefited from a rural electrification program. The program was implemented before the commissioning of the project. According to ESSD-NEA Post-Construction Environmental Impact Audit Study Report, the program has had significant positive impacts on the quality of life of rural people and it helped build support for the project.

### Outcomes

No information could be found on the use the revenues received from power installations by the affected districts and VDCs.

### Assessment of outcomes by involved stakeholders

No information on the assessment of the outcomes of royalties received by districts and VDCs from the Kali Gandaki Hydroelectric Project could be found. However, In May 2005, Winrock International, Nepal and Nepal Water Conservation Foundation, with the support of the Ford Foundation, IUCN and GTZ, organized a national workshop to discuss the equity and justice issues associated with the use of the hydropower royalty. Participants included representatives from the central government, DDC governments, hydropower developers, affected communities, Nepalese NGOs, international NGOs and donors. The main conclusions of the workshop are the following (Upadyaya, 2006):

- Nepal's recent laws and regulations that require the central government to share hydropower royalty with the DDCs are viewed as a positive step towards promoting just and equitable sharing of benefits from hydropower development.
- Most participants agreed that some central guidelines for the distribution and use of hydropower royalty are needed to protect the interest of those affected by hydropower projects. Despite some concerns about increased influence from the central government, many participants thought such guidelines would not be against the spirit of Local Self-Governance Acts and Regulations.
- The majority of participants also argued for the need to invest hydropower royalty in upstream watersheds of hydropower plants. Upstream watersheds provide valuable environmental services that enhance efficiency and prolong the life of hydropower plants. Royalty sharing would provide incentives to upstream communities to undertake conservation measures.
- Participants also felt that existing rules and regulations concerning royalty sharing emphasize powerhouse areas and ignore downstream areas which may have been hurt more by hydropower plant construction. Such areas should also be entitled to a share of royalty.

- Opinions diverged somewhat on the wisdom of distributing hydropower royalty to other districts in development regions not affected by particular hydropower projects. Some participants suggested that a more scientific basis would be to distribute royalty on the basis of the catchment area of a hydropower plant.
- Participants also debated whether hydropower royalty should be used for the development of remote areas. One view was that hydropower royalty should be spent in areas affected by a hydropower project, and that the central government should allocate equalization grants to other districts. Another view was that since all Nepalis are paying for the cost of hydropower construction, they should also be entitled to a share of the benefits.
- Strong arguments were also made for using a part of hydropower royalty to promote sectoral interest such as watershed conservation, rural electrification, setting up of an emergency repair fund for the repair and maintenance of hydropower plants, etc.

Many of these issues can only be resolved through open and transparent negotiation among various stakeholders. Priorities may vary depending on site-specific conditions and over time.

### **Overall Conclusions**

The conclusions of the workshop presented above on the use of the hydropower royalty show that the Nepalese legislation may require further improvement concerning the distribution and use of the royalty to protect the interest of project-affected people. However, such a legislation is viewed by the participants as a positive step towards promoting just and equitable sharing of benefits from hydropower development. In the case of the Kali Gandaki Hydroelectric Project, a study on the outcomes of the revenues received by the affected districts and VDCs and on how they benefited project-affected people is required so as to draw specific lessons from the example.

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## **5.12 LESOTHO FUND FOR COMMUNITY DEVELOPMENT**

### ***Identification of the Example***

#### Key issue addressed

Establishing a development fund using royalty payments

#### Integration

- Treaty between Lesotho and the Republic of South Africa on Lesotho Highlands Water Project (October 1986)
- Lesotho Fund for Community Development established through a legal notice in March 1999

#### Implementation

- Lesotho Highlands Water Project
- Project developers: Trans-Caledon Tunnel Authority (TCTA) in South Africa and Lesotho Highlands Development Authority (LHDA) in Lesotho
- Phase 1 of the Project completed in 2004

#### Stage regarding the project life cycle

Project construction and operation

### ***Description of the framework***

#### Country institutional set up

Upon independence from the UK in 1966, Batsutoland was renamed the Kingdom of Lesotho which is governed as a parliamentary constitutional monarchy with a bicameral Parliament. The country is completely surrounded by South Africa. The western part of it is occupied by a high plateau. In the East, Lesotho is mountainous (the Maloti mountains) but well watered. The population of Lesotho was approximately 2,000,000 persons in 2001. Most of the population lives on the western side of the country while the eastern side is sparsely populated and is largely of arable land.

The Lesotho Highlands Water Project (LHWP) is a bi-national project between Lesotho and South Africa involving the export of water from Lesotho (through a series of dams and tunnels) to the water-scarce Gauteng Province in South Africa (which produces 60% of South Africa GDP). The LHWP concept came into being in 1956 as the Oxbow Scheme, which foresaw South Africa funding the project and subsequently purchasing electricity that Lesotho could not use at the time as it was an underdeveloped country. South Africa did not commit to the project and discussions continued. A commission set up by the South Africa Government in 1966 assessed the viability of the project. Political reasons hampered discussions: South Africa's insistence on incorporating Basutoland into the Republic, South Africa's apartheid,

Basutoland Congress parties demand that territory be handed back to Lesotho, South Africa's unwillingness to be dependent on a foreign state for its water resources. The conflict reached an apex in 1982 with South Africa's attacks after which both countries used LHWP for political gains, Lesotho asserting that it would shut off water supplies in the event of a military attack by South Africa and South Africa ensuring that it would get an uninterrupted supply. The project was clearly at the centre of underlying security issues. After an economic blockade imposed by South Africa, a coup d'état took place on 16 January 1986 with suspicions that South Africa had instigated this change of government<sup>17</sup>.

The beginning of the project was authorized by the signing of an international Treaty between Lesotho and South Africa in October 1986, in which the two parties committed themselves to the first two phases of the project (Phases 1A and 1B).

#### Treaty between Lesotho and the Republic of South Africa on Lesotho Highlands Water Project

According to the 1986 Treaty between Lesotho and the Republic of South Africa on Lesotho Highlands Water Project, South Africa will pay Lesotho royalties for water transferred and Lesotho will receive all of the hydroelectric power generated by the project. The provisions of the Treaty give an example of the explicit consideration of the rent available from a water project. As explained by Rothman (2000), the royalties cannot be seen as payment for the water itself, since that would devolve to South Africa in any case. Royalties are to be viewed as payment for the use of the water in its higher elevation in Lesotho. The Treaty bases royalty payments on the difference in cost between two entirely hypothetical systems. Each of them is designed to deliver 70 m<sup>3</sup>/s of water to the Vaal River system. The first system, which forms the basis for the alternative cost calculation, is the Least-Cost Orange Vaal Transfer Scheme. It is a system of canals, tunnels, siphons, and other works that would move 70 m<sup>3</sup>/s of water from the Orange River to a tributary of the Vaal. The other system is the Lesotho Highlands Water Project Initial Development.

The cost savings associated with the selected scheme include investment costs and operation and maintenance costs, so that two types of royalties will be paid by South Africa to Lesotho:

- The fixed royalties are based on capital cost savings and are to be paid for a period of 50 years from the moment the water level at the Katse Dam reaches a certain point. Those royalties were first paid in October 1996.
- The variable royalties are based on savings in operation and maintenance costs and are to be paid from the moment South Africa receives water from the water transfer scheme (January 1998). Those royalties are calculated according to the amount of water delivered, the cost of electricity and various inflation indicators.

The royalties represent 56% of the cost savings between LHWP and the next lowest cost alternative (The Orange Vaal Transfer Scheme). This proportion, which favours

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<sup>17</sup> Most of this paragraph is extracted from Klaphake, Axel. 2005. *Kooperation an internationalen Flüssen aus ökonomischer Perspektive: Das Konzept des Benefit Sharing*. Deutsches Institut für Entwicklungspolitik. German Development Institute. Discussion Paper. [www.die-gdi.de/die\\_homepage.nsf/](http://www.die-gdi.de/die_homepage.nsf/)

Lesotho slightly over what might have been a baseline 50/50 split of the rent, could reflect the fact that, relative to South Africa, Lesotho is a small and poor country and the water in the Maloti Mountains can be seen as the only significant natural resource of the country. These revenues are extremely important for Lesotho. Lesotho's economy is largely dependent on South Africa as a source of income, employment and foreign exchange. A significant part of Lesotho's income is derived from remittances from 110,000 Basotho migrant workers who work in the coal and gold mines of South Africa.

### Organisational set up

The project has been financed by a variety of international aid agencies and lending institutions, including the World Bank, but reimbursement of the loan comes under the entire responsibility of South Africa which is responsible for all construction costs of the project. The power generation facilities are being built entirely by Lesotho which is also entitled to all the electricity supplied by the facilities.

The Joint Permanent Technical Commission later known as the Lesotho Highlands Water Commission (LHWC), was created in 1986 as a result of the Treaty and is responsible for the overall implementation of the project. Its role is to ensure the conditions of the 1986 Treaty are upheld. The LHWC can play an arbitration role in dispute between the two countries. The LHWC also monitors the activities of the two national companies created as a result of the Treaty to manage the project in each country: the Trans-Caledon Tunnel Authority (TCTA) in South Africa and the Lesotho Highlands Development Authority (LHDA).

The LHDA is charged with the engineering, construction, operation and maintenance of the Lesotho part of the project. The LHDA's mandate comprises three elements:

- (i) to capture and transfer water from Lesotho to South Africa, and by so doing to generate royalties;
- (ii) to generate hydroelectric power for Lesotho (LHDA is responsible for funding and building the Muela hydropower station, the only hydroelectric generating station built for the first two phases of the project);
- (iii) to promote sustainable development in the Highlands of Lesotho.

### Implementation history: the Lesotho Highlands Revenue Fund

Lesotho decided to deposit part of the revenues gained from the project (royalties plus incremental revenue from the South African Custom Union<sup>18</sup>) into the Lesotho Highlands Revenue Fund (LHRF). This Fund was established in 1991. It is administered by the Lesotho Government. The resources from the Lesotho Highland Revenue Fund have been used throughout Lesotho for development purposes. Some 144 million Maloti (US\$ 42 million) have been spent on small-scale infrastructure projects using local labour, such as roads, small dams, foot bridges and forestry and soil conservation projects (World Bank, 2005).

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<sup>18</sup> Because of the project, Lesotho is gaining more tax revenue on importation from the South African Custom Union (SACU).

The World Bank project appraisal document of Phase 1B Project (1998) concludes that, while the LHRF has been successful in starting a poverty focused public works program, the Fund has suffered from a number of weaknesses in terms of technical review (raising questions about the sustainability of some investments), transparency and accountability. The selection of some of the initial projects was not transparent; technical designs were weak (and hence some dams and roads have been washed away); weaknesses have been detected in financial control and monitoring. A limited number of legal proceedings for fraud have been initiated. In addition, the LHRF was highly politicized due to the leading role that members of Parliament played in identifying projects and beneficiaries in their constituencies, and the lack of guidelines for accessing funds (World Bank, 2004).

To regularize matters, Fund operations were suspended by the Government of Lesotho in early 1997. A combined technical and financial audit was completed in December 1997. The Government of Lesotho recognized the need for a radical overhaul of the Fund's operations and undertook a process of consultations to put this in place between April and June 1998. Meanwhile the Government of Lesotho clearly placed the Fund at the centre of its poverty alleviation strategy. LHWP resources were to be used following a two window approach. The first was a community driven, labour intensive, poverty focused Social Fund, with the rest being transferred directly to the budget. The latter was to be used to offset any potential falls in revenue due to re-negotiation and to falling miner remittances.

### ***Description of the Example***

#### Project description

LHWP is a dual purpose project:

1. By a series of dams and tunnels, the project will control and redirect a portion of the water of the Senqu/Orange River in the mountain region of Lesotho to the Vaal River basin where it will be utilized for municipal and industrial purposes in the Gauteng Province of the Republic of South Africa.
2. The LHWP will take advantage of the head differential between the highlands and lowlands of Lesotho to generate hydroelectric power and meet the needs of Lesotho.

The LHWP was planned to be implemented in five phases, which would together transfer 70 m<sup>3</sup>/s of water to South Africa. Under the international Treaty between Lesotho and South Africa, the two parties committed themselves to the first two phases of the Project (Phases 1A and 1B).

Under Phase 1A, the Katse and Muela dams were built for a total of US\$ 2.5 billion. First water was delivered in January 1998. Phase 1A also comprised the construction of a 72 MW Muela hydroelectric project in Lesotho. Phase 1B comprises a 145 m dam at Mohale, a 15 m weir at Matsoko and water tunnels from each site to channel water to Katse reservoir. From Katse, the water is transferred by gravity to Gauteng Province in South Africa. Phase 1B was completed in 2004. Total cost of Phase 1B is

US\$ 1.1 billion. The first two phases are able to deliver about 38 m<sup>3</sup>/s of water to South Africa (the whole project, once completed, would deliver 70 m<sup>3</sup>/s).

### Implementation: the Lesotho Fund for Community Development

The LHRF was reformulated with the intent of supporting community demand-driven activities with a poverty reduction focus, giving preferential focus on five pre-identified poor district, as well as the peri-urban areas of Maseru. The new entity, the Lesotho Fund for Community Development (LFCD), was established through a legal notice in March 1999, and began operating in 2000. The LFCD was to be governed by a nine-member Board, with four Ministers (as opposed to the design teams' recommendations of Principal Secretaries) and NGO representation. The Fund was to be assisted by a Technical Advisory Committee consisting of technical level members. The Board would report to the Prime Minister. It was agreed that information about the Fund would be shared widely and that the Fund should operate independently of political influence.

The new Fund is managed under the Community Development Support Project which became effective in July 2000. Its first objective was to test demand-driven and participatory approaches through LFCD and draw lessons on how to support community development in Lesotho. The second objective was to test various mechanisms and tools to monitor poverty trends in Lesotho and to coordinate national poverty monitoring and analysis activities. An Operating Manual was formulated to guide the process for community demand-driven activities.

### Outcomes of the Lesotho Fund for Community Development

The stream of royalty incomes to the Government of Lesotho has been substantial: since the inception of the project up until June 2005, 1.57 billion Maloti have been paid for water transfer. In addition, until about 190 million Maloti were paid for project-related imports as South African Custom Union (SACU) revenues to Lesotho, bringing the total amount of resources generated to about 1.76 billion Maloti. Annual royalty payments associated with Phase 1A for the next 50 years will amount to about 180 million Maloti (US\$ 28 million), which represents about 1.8% of Lesotho GDP and 4.5% of government revenues in 2004 (World Bank, 2005).

Since the vast majority of royalties have not been allocated to the LHRF or its successor, the LFCD, they have been placed in the general budget. The most important shift in government spending over the past 15 years has been the decline in interest payment on domestic or foreign debt whose share in recurrent spending fell from 19% in 1990 to 6% in 2005. As a result, a larger share of recurrent spending could be used on other activities, mainly education whose share of recurrent spending increased from 22% in 1990 to 30% in 2005. This is associated with the policy to phase in universal free education since 2000, which has greatly increased enrolments in education. The royalty incomes have played a significant role enabling this expansion to take place (World Bank, 2005).

The LFCD was given some 144 million Maloti (US\$ 23 million) in budget allocations between 2000 and 2005. The Fund identified 101 projects, most of which were feeder roads, some conservation projects and some water supply projects. Of those projects,

58 have been completed, 26 suspended due to problems in implementation and other ones are on-going. The budget allocations in recent years have been very low: 14 million Maloti (US\$ 2.2 million) in 2003/04, 30 million Maloti (US\$ 4.8 million) in 2004/05 and 15 million Maloti (US\$ 2.4 million) in 2005/06, which have made it impossible for LFCD to finish the projects started, let alone start new ones. With administrative expenses of 6 million Maloti (US\$ 1 million) in 2001/02 rising to 12 million Maloti (US\$ 2 million) in 2005/06, LFCD is clearly currently under-resourced and not utilized fully (World Bank, 2005).

In addition, a 2004 World Bank implementation completion report on the Lesotho Community Development Support Project has identified the following factors as having a negative impact on LFCD outcomes

- The Government of Lesotho's decisions relating to the composition of the Board affected the implementation of LFCD. The presence of four Ministers on the Board affected its ability to act expeditiously and introduced a significant political element. This situation was further exacerbated when the Government of Lesotho increased the number of Ministers from four to six, thereby giving this group a majority, and when the LFCD Act was amended to allow Members of the National Assembly to submit proposals
- In 2001, existing District Development Councils and Village Development Councils were abolished. This decision left a further vacuum where key players had been expected to participate in providing technical, supervisory and monitoring support to sub-projects.
- Understaffing of the LFCD and the altering of the agreed institutional structures (the sections responsible for procurement, project development and justification were never established) substantially affected the ability to test community demand-driven activities and participatory approaches.

#### Assessment of outcomes by involved stakeholders

Apart from the World Bank whose assessment of outcomes of the LFCD has been summarized above, other involved stakeholders have generally focused their efforts on the monitoring of the environmental impacts and of the resettlement process of the LHWP. However, opinions have been expressed on the performance of the LHRF and the LFCD by other stakeholders. According to Thayer Scudder, a member of the Panel of Experts for the LHWP, "reliable mechanisms to ensure that the revenue [from the fund] is, in fact, used for the stipulated purposes remain to be achieved." (Scudder, 2003). Mabusa Lenka Thamae from the Transformation Resource Centre, an NGO based in Lesotho, and Lori Pottinger from the International Rivers Network, have drawn the following lessons from the LHRF experience: "An analysis of Lesotho politics and government capacity to handle such a project might have indicated early on that simply setting up such a Fund would be insufficient to the task. Specific rules on ensuring transparency in the management of the Fund, and public information on its activities and programs should have been put in place. An independent oversight committee with the participation of civil society representatives could have helped ensure that the funds would have been allocated to benefit the

population of Lesotho and in particular the affected communities in the Highlands.” (Thamae and Pottinger, 2006).

### **Overall Conclusions**

The LHWP gives an example of an explicit measurement of the rent as well as of sharing the rent on the basis of the relative needs of the parties who can claim its ownership. The 56/44 split recognizes the dependency of Lesotho on the exploitation of its water resources as an additional source of much needed income. The stream of royalty incomes has been substantial and has increased government revenues. Part of the revenues that have been allocated to the LHRF and to the LFCD were used for poverty reduction and did not target explicitly the project-affected population. However, the latter would represent a significant part of the country population as Lesotho is a small country. In addition, the funds did not address the people that are adversely affected by the environmental changes downstream of the Matsoko weir and the Katse and Mohale dams.

This example illustrates the importance of establishing and implementing sound institutional mechanisms to manage the funds made available through project benefit sharing. The LHRF encountered many problems, including the role of Members of Parliament in identifying projects and the poor quality of the infrastructure generated. The setting up of its successor, the LFCD, was based on a full range of reforms addressing those problems, particularly new budgeting procedures, annual technical and financial audits and procedures to make these audits publicly available. However, most reforms have not been implemented. The outcomes of LFCD have also proved to be unsatisfactory.

### **References**

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Rothman, Mitchell. 2000. *Measuring and Apportioning Rents from Hydroelectric Power Developments*. World Bank Discussion Paper No. 419.

Scudder, Thayer. 2003. *The Lesotho Highlands Water Project and Laos's Nam Theun 2 Dam*. Unpublished Manuscript.  
<http://www.hss.caltech.edu/~tzs/Lesotho%20&%20Laos%20Cases.pdf>

Thamae, Mabuseta Lenka and Lori Pottinger. 2006. “The Role of the World Bank: The Perspective of International NGOs”. In *On the Wrong Side of Development. Lessons Learned from Lesotho Highlands Water Project*. Edited by Mabuseta Lenka Thamae and Lori Pottinger. Transformation Resource Centre. Maseru, Lesotho.

World Bank. 1998. *Project Appraisal Document on a Proposed Loan in the Amount of US\$ 45 million to the Lesotho Highland Development Authority for Lesotho Highlands Water Project*. Report No. 17727-LSO.

World Bank. 2004. *Implementation Completion Report on a Credit in the Amount of US\$ 4.67 Million to the Kingdom of Lesotho for a Community Development Support Project*. Report No. 27944-LSO.

World Bank. 2005. *Lesotho Highlands Water Project. World Bank Implementation Review Mission. Sept 5-15,2005. Aide-Memoire*.

## 6. Conclusion

Twelve examples were presented in the report to illustrate the objectives and types of benefit sharing mechanisms. The following conclusions can be drawn from these examples.

When the monetary benefit sharing framework is defined in a legislation, it often takes the form of transfers of part of the revenues from hydropower projects to municipalities or regional entities. This is the case of the Colombian, Brazilian and Nepalese legislations. These legislations do not directly address the project-affected people. However, these people may benefit from the infrastructures and services put in place with the funds received from the projects. This type of legislation can thus be considered as a positive step towards equitable sharing of benefits from hydropower development, provided sound mechanisms are implemented to manage the funds received by municipalities or regional entities. However, no comprehensive follow-up study concerning the examples selected could be found concerning opinions from involved stakeholders as well as on the use of those funds and how they benefited project-affected people.

The Chinese legislation also comprises a revenue transfer mechanism that takes the form of “Later Stage Support Funds” to resolve outstanding problems resulting from dam-induced population displacement. These funds are financed from power sales and managed by the Provincial Resettlement Bureaus. This legislation demonstrates the commitment of Chinese authorities to achieve full restoration of the livelihood of the resettled people. However, no follow-up studies that evaluate the performance of such funds could be found.

Another example of revenue transfer is the Paix des Braves Agreement between the Government of Québec and the Grand Council of the Crees in Canada. This agreement is also an interesting example of recognition of the rights of Indigenous communities to have a say in the management of natural resources on their ancestral lands.

The Norwegian legislation comprises a variety of mechanisms: revenue sharing, equity sharing, development funds, property taxes, preferential electricity rates. This legislation explicitly recognizes that project affected people, as part of the populations of municipalities in which water resources are exploited, must receive a share of the project benefits, over and above mitigation and compensation measures that are included in project design. However, such revenues represent a relatively small part of the budget of the municipal sector in Norway.

Two examples concern development funds related to dams that are built on shared river basins: the Columbia Basin Trust (CBT) and the Lesotho Fund for Community Development (LFCF). They provide the only examples of explicit measurement of the economic rent generated by dam projects. In each case, part of the rent was used to finance a development fund. The CBT exemplifies several approaches that maximize the efficiency of such funds, e.g. the setting up of provisions that foster the active involvement of community organizations in the project-affected area. The LFCF encountered many problems that illustrate the importance of establishing and implementing sound institutional procedures to manage such funds.

Establishing partnership agreements between developers and local communities is probably the most innovative form of monetary benefit sharing. For the developer, a partnership provides an assurance of the local acceptance of the project, thereby reducing the level of risk and the cost of lengthy feasibility studies and authorization processes. For the local communities, it is a recognition of their entitlement to a share of the economic rent generated by the dam as well as of their rights to have a say in the management of local water resources. Four hydropower projects in Hubei, China, two Canadian projects (Minashtuk and Toulmoustouc) and the Jondachi hydroelectric project in Ecuador illustrate this type of mechanism. One determining factor of success for partnership agreements is a long term power purchase agreement that provide the necessary condition for the local community to invest.

Monetary benefit sharing mechanisms described in these examples are relatively new mechanisms. In a most instances, the framework has been implemented recently and outcomes have been only partially evaluated. They would all benefit from further studies, including interviews with concerned stakeholders, on the outcomes and results of the benefit sharing mechanisms implemented in the context of each project.

## APPENDIX

### Data Base of Relevant Frameworks and Examples Concerning Benefit Sharing

#### **General**

Egré, D., V. Roquet and C. Durocher. 2002. *Benefit Sharing from Dam Project. Phase 1: Desk Study Report* prepared for Alessandro Palmieri, World Bank.

Huber, Richard M., Jack Ruitenbeek and Ronaldo Serôa da Motta. 1998. *Market-Based instruments for Environmental policy-Making in Latin America and the Caribbean*. World Bank discussion Paper No. 381

Klaphake, Axel. 2005. *Kooperation an internationalen Flüssen aus ökonomischer Perspektive: Das Konzept des Benefit Sharing*. Deutsches Institut für Entwicklungspolitik. German Development Institute. Discussion Paper. [www.die-gdi.de/die\\_homepage.nsf/](http://www.die-gdi.de/die_homepage.nsf/)

Rothman, Mitchell. 2000. *Measuring and Apportioning Rents from Hydroelectric Power Developments*. World Bank Discussion Paper No. 419.

Trembath, Barry. Undated. *Sharing of benefits and Rents Arising from Hydropower Plants*.

Van Wicklin III, Warren W. 1999. *Sharing Project Benefits to Improve Resettlers' livelihoods*. In *The Economics of Involuntary Resettlement. Questions and Challenges* edited by Michael M. Cernea. World Bank.

Winrock International. 2004. *Financial Incentives to Communities for Stewardship of Environmental resources*. Preliminary Study Submitted to U.S. Agency for international Development, Asia and Near East Bureau. Washington D.C., U.S.A.

#### **Country or Utility Frameworks**

The table on the next pages presents a list of information sources on monetary benefit sharing frameworks by country and utility as well as on projects where such frameworks have been applied.

**Database of Relevant Frameworks and Examples  
Regarding Benefit Sharing**

Country/Name	Policy/Framework	References For Policy/Framework	Relevant Dam Project	References For Dam Project
<b>Government</b>				
Brazil	<b>Constituição da República Federativa do Brasil, Título III, Capítulo II, Artigo 20 Law 8001 of 1990</b>	<a href="http://www.aneel.gov.br/cedoc/lei189908001.pdf">www.aneel.gov.br/cedoc/lei189908001.pdf</a>	Itaipú	<p>Altino Ventura Filho. 1999. <i>ITAIPU, A Binational Hydroelectric Power Plant: Benefits and Regional Insertion</i>. ITAIPU Binacional. Paper submitted to the WCD Regional Consultation "Large Dams and their Alternatives in Latin America". 16p.</p> <p>Gomide, Francisco. 2004 <i>Benefit sharing: Experiences from Brazil</i>. Presented to the United Nations Symposium on Hydropower and Sustainable Development, Beijing, China.</p>

Country/Name	Policy/Framework	References For Policy/Framework	Relevant Dam Project	References For Dam Project
Canada, Province of Québec	<b>“Paix des Braves” Agreement (2003)</b>	<u>Agreement Concerning a New Relationship (Paix des Braves)</u> between the Government of Quebec and the Crees of Québec (2003)	Eastmain, Eastmain-1A and Rupert Diversion	Hydro-Québec (2003) Eastmain-1A and Rupert Diversion Environmental Assessment  Courcelles, Réal (August 2002). <i>Gaining Public Acceptance before Starting an EIA for a Hydroelectric Project in Northern Québec – Canada</i> . Presentation to the International Hydropower Association (IHA) prepared by Hydro-Québec, Relations with Aboriginal Communities.  The Grand Council of the Crees, Eeyou Eenu, <u>The Voice of the People</u> (August 2002). <i>Building our Nation on Eeyou Eenu !</i> Summary of the Nadoshtin Agreement (pages 20-24) and Summary of the Boumhounan Agreement (pages 26-29).
Canada, British Columbia	<b>Columbia Basin Trust</b>	www.cbt.org  Columbia Basin Trust Amendment Act: www.lwgis.gov.bc.ca/37th4th/1st_read/gov79-1.htm  Rothman, Mitchell. 2000. <i>Measuring and Apportioning Rents from Hydroelectric Power Developments</i> . World Bank Discussion Paper No. 419.	Libby Dam, U.S.A. Mica, Keenleyside and Duncan Dams, Canada	

Country/Name	Policy/Framework	References For Policy/Framework	Relevant Dam Project	References For Dam Project
China	<p><b>Land Administration Law (1986)</b></p> <p><b>1991 and 1996 Regulation on Later Stage Support Fund for Hydropower and Water Conservancy Projects</b></p>	<p>Jun Jing (2000) <u>Displacement, Resettlement, Rehabilitation, Reparation and Development – China Report</u>, Contributing Paper for the World Commission on Dams</p> <p>ADB (1998) <u>Handbook on Resettlement: A Guide to Good Practice</u>, available online at <a href="http://www.adb.org/documents/handbook/resettlement">www.adb.org/documents/handbook/resettlement</a></p> <p>Fuggle R. and W.T. Smith. 2000. <i>Experience with Dams in Water and Energy Resource Development in the People's Republic of China</i>. Country Review Paper prepared for the World Commission on Dams.</p>	<p>Shuikou (World Bank)</p> <p>Yantan (World Bank)</p> <p>Xiaolangdi (World Bank)</p>	<p>Operation Evaluation Department of the World Bank. 1998. <i>Recent Experience With Involuntary Resettlement; China - Shuikou (and Yantan)</i>.</p> <p>Youxuan Zhu, Martin ter Woort and Barry Trembath. 2000. <i>Successful Reservoir Resettlement in China, Shuikou Hydroelectric Project</i>,. World Bank, EASES Discussion Paper Series.</p> <p>World Bank. <i>Xiaolangdi Multipurpose Project: Stage II</i>.</p> <p>World Bank. <i>Xiaolangdi Multipurpose Project</i>.</p> <p>World Bank. <i>Xiaolangdi Resettlement Project</i>.</p>

Country/Name	Policy/Framework	References For Policy/Framework	Relevant Dam Project	References For Dam Project
Colombia	<p><b>National Law 99 (1993)</b></p> <p><b>Decree 1933 of 1994</b></p>	<p>República de Colombia. Ministerio del Medio Ambiente. <i>Decreto 1933 del 5 de Agosto de 1994.</i> <a href="http://www.ideam.gov.co/legal/decretos/1990/d1933-1994">www.ideam.gov.co/legal/decretos/1990/d1933-1994</a></p> <p>Ramirez J. and R. Cubillos. 1995. <i>Economic Instruments for Environmental Management in Latin America and the Caribbean: Colombia Country Background Paper.</i> World Bank.</p> <p>Controlaría General de la República. 2005. <i>Evaluación de las Transferencias del Sector Eléctrico a las Corporaciones Autónomas regionales y a los Municipios.</i> <a href="http://www.controlariagen.gov.co">www.controlariagen.gov.co</a>.</p>	Urrá 1	<p>Asociación Colombiana de Generadores de Energía Eléctrica: <a href="http://www.acolgen.org.co">www.acolgen.org.co</a>. Controlaría General de la República. 2002. <i>Evaluación de las Transferencias del Sector Eléctrico a las Corporaciones Autónomas regionales.</i> <a href="http://www.controlariagen.gov.co">www.controlariagen.gov.co</a>.</p> <p>Castro Illera, Margarita de and D. Égré. 2000. <i>Successful Involuntary Resettlement: Lessons from the Urrá 1 Project in Colombia.</i> In The International Journal of Hydropower &amp; Dams. Volume 7, Issue 2, 2000.</p> <p>Castro, Margarita de. 2000. <i>Lesson from Resettlements of Urrá Hydropower Project.</i> Submission to the World Commission on Dams.</p>
<p>Ecuador Germany With the support of GTZ (Gesellschaft für Technische Zusammenarbeit) German Agency for Technical Cooperation</p>	<b>Proyecto Hidroamazónico – PROHA</b>	<p>GTZ. KFW. 2004. <i>Implementation of the WCD Recommendations within German Development Cooperation.</i> <a href="http://www2.gtz.de/dokumente/bib/04-5722.pdf">www2.gtz.de/dokumente/bib/04-5722.pdf</a></p> <p>Schuster, Anne. 2005. <i>A Participative Approach to Using the Hydropower Potential of the Sumaco Rain Forest in Ecuador.</i> In DDP-UNEP. 2005. Issue-Based Workshop on Gaining Public Acceptance. DDP Secretariat, Nairobi, Kenya.</p>	Jondachi Hydroelectric Project	<p>Erdesu S.A.. 2005. <i>Project Idea Note – Jondachi Hydroelectric Project.</i> <a href="http://cordelim.net/imagesFTP/5678.PIN_Jondachi_May2005.pdf">http://cordelim.net/imagesFTP/5678.PIN_Jondachi_May2005.pdf</a></p>

Country/Name	Policy/Framework	References For Policy/Framework	Relevant Dam Project	References For Dam Project
Japan	<b>Act on Special Measures for Reservoir Area Development (1972)</b>	<p>S. Yokotsuka and T. Inoue. Undated. <i>Roles of Dam in the Development of River Basin in Japan</i>. <a href="http://www.icold-cigb.net/Role%20of%20Dams%20in%20Japan.htm">www.icold-cigb.net/Role%20of%20Dams%20in%20Japan.htm</a></p> <p>T. Inoue. 2000. <i>Institutional Framework for Social Acceptability of Dam Project in Japan</i>. Submission to the World Commission on Dams</p> <p>Takahasi, Yutaka. 2004. <i>Dams, environment and Regional Development in Japan</i>. In Water Resources Development. Volume 20, No. 1, 35-45, March 2004.</p> <p>Submission to UNEP/DDP: Yoshida Itoshi. The Special Measures Act Concerning Upstream Area Development.</p>	Gosho (1971) Miyagase Tonekawa Arakawa Yasaka	<p>Harada, Joji. 2002. <i>Comprehensive Development in Reservoir Watersheds: the Japanese Experience</i>. In Water Resources Development. Volume 18, No. 2, 285-299 2002.</p> <p>Submissions to UNEP/DDP:</p> <ul style="list-style-type: none"> <li>- Tanoue Yuuji. The Tonegawa and Arakawa Reservoir Area Development Fund</li> <li>- Shimizu Tutomu. Measures to develop the reservoir area of the Miyagase dam.</li> </ul> <p>International Energy Agency. 2005. Implementing Agreement for Hydropower Technologies. Annex VIII: <i>Hydropower Good Practices: Environmental Mitigation Measures and Benefits (Draft)</i>. Case studies on Yasaka Dam, Gosho Dam and Miyagase Dam.</p>

Country/Name	Policy/Framework	References For Policy/Framework	Relevant Dam Project	References For Dam Project
<p>Kingdom of Lesotho</p> <p>South Africa</p>	<p><b>Treaty between Lesotho and South Africa on Lesotho Highlands Water Project</b></p>		<p>Lesotho Highlands Water Project</p>	<p>World Bank. 1998. <i>Project Appraisal Document on a Proposed Loan in the Amount of US\$ 45 million to the Lesotho Highland Development Authority for Lesotho Highlands Water Project</i>. Report No. 17727-LSO.</p> <p>World Bank. 2001. <i>Kingdom of Lesotho. – Country Assistance Evaluation</i>.</p> <p>Rothman, Mitchell. 2000. <i>Measuring and Apportioning Rents from Hydroelectric Power Developments</i>. World Bank Discussion Paper No. 419</p> <p>World Bank. 2004. <i>Implementation Completion Report on a Credit in the Amount of US\$ 4.67 Million to the Kingdom of Lesotho for a Community Development Support Project</i>.</p> <p>Scudder, Thayer. 2005. <i>The Lesotho Highlands Water Project and Laos' Nam Theun 2 Dam</i>. <a href="http://www.hss.caltech.edu/Tzs">www.hss.caltech.edu/Tzs</a></p>

Country/Name	Policy/Framework	References For Policy/Framework	Relevant Dam Project	References For Dam Project
Nepal	<p><b>Electricity Act (1992)</b></p> <p><b>Local Self-Governance Act and Regulations (1999)</b></p> <p><b>2001 Hydropower Development Policy</b></p>	<p>Upadhyaya, Shyam K. 2006. <i>Reorienting the Distribution of Hydropower Royalty to Promote Equity and Justice</i>. Proceedings of a National Workshop on Sharing Hydropower Royalty. Winrock International.</p> <p>Siwakoti Chintan, Gopal. 2004. <i>Concepts and Methodologies on Benefit Sharing from Large Hydro Dams : Experiences from Nepal</i>. Prepared for the UN Symposium on Hydropower an Sustainable Development, Beijing, China.</p> <p><a href="http://www.ippan.org.np/acts_&amp;_policies.htm">www.ippan.org.np/acts_&amp;_policies.htm</a></p>	<p>Upper Seti (Denali) (JICA involved)</p> <p>Kali Gandaki</p> <p>Arun-3</p> <p>Middle Marsyangdi</p>	<p>ESSD-NEA. <i>Kali Gandaki "A" Hydroelectric Project. Post Construction Environmental Impact Audit Study</i>.</p>
Norway	<p><b>Industrial Licensing Act No. 16 (1917)</b></p> <p><b>Act relating to regulation of watercourses (1917)</b></p> <p><b>Act relating to River Systems and Groundwater (2000 Water Resources Act)</b></p> <p><b>Power Taxation Act</b></p>	<p>Ministry of Petroleum and Energy. <i>Facts 2004 – The Energy Sector and Water Resources in Norway</i>.</p> <p>Ministry of Petroleum and Energy. 2006. <i>Acts relating to the Energy and Water resources Sector in Norway</i>.</p> <p>Wold, Bjorn, Rune Flatby, Thomas Konow and Kristian Lokke. 2006. <i>Licensing from Dam Construction and Operation – Practical decision Support Developed and Improved over 100 Years</i>. Norwegian Water Resources and Energy Directorate</p>	<p>Glomma and Laagen</p> <p>Tokke</p>	<p>Norwegian Institute for Nature Research and Eastern Norway Research Institute, Eastern Norway Research Institute and the Glommens and Laagens Brukseierforening. 2000. <i>The Glomma and Laagen Basin, Norway</i>, case study prepared as an input to the World Commission on Dams, Cape Town, <a href="http://www.dams.org">www.dams.org</a></p>

Country/Name	Policy/Framework	References For Policy/Framework	Relevant Dam Project	References For Dam Project
Philippines	<b>Republic Act 7638 of the Department of Energy (1992)</b>	ADB. 1998. <i>Handbook on Resettlement: A Guide to Good Practice</i> . www.adb.org/documents/handbook/resettlement Isidro, Victor. 2001. Dam Construction and Development in the Philippines. www.adb.org/Documents/Events/2001/Dams_Devt/isisdro-papee.pdf		
Switzerland		Banfi, Silvia, Massimo Filippini and Cornelia Luchsinger. <i>Resource Rent Taxation – A new Perspective for the Swiss Hydropower Sector</i> . Societa Italiana dei Economia Pubblica. CEPE. <a href="http://www.cepe.ethz">www.cepe.ethz</a>  Banfi, Silvia, Massimo Filippini and Adrian Mueller. "005. <i>An Estimation of the Swiss Hydropower Rent</i> . In Energy Policy, Volume 33, Issue 7, Pages 927-937.		
<u>Utilities</u>				
Hydro-Québec	<b>Hydro-Québec participatory approach on partnership with aboriginal communities and local communities</b>	Roux, Denis and Seelos, Karin. 2004. <i>Building on Partnerships with Aboriginal Communities</i> . The International Journal on Hydropower & Dams. Issue 4, 2004. Aqua-Media International Ltd.	Sainte-Marguerite 3  Toulnustouc and three partial river diversions  Minashtuk	Conseil des Montagnais du Lac Saint-Jean. 23 octobre 2003. Mémoire présenté au Bureau d'Audiences Publiques en Environnement sur le projet d'aménagement de la rivière Peribonka.  Hydro-Ilnu inc. November 1996. Public Presentation of the Project at the Official Inauguration.

			<p><i>Entente concernant les modalités d'accès à la Zec Matimek et les mesures d'atténuation.</i> 1995.</p> <p><a href="http://www.hydroquebec.com/sm3_project/">http://www.hydroquebec.com/sm3_project/</a></p> <p>Hydro-Québec. 1990. <i>Program for Environment Enhancement.</i></p> <p>Hydro-Québec. 1991. <i>Aménagement hydroélectrique Sainte-Marguerite-3, Rapport d'avant-projet.</i> (Draft Design Report). 8 volumes.</p> <p>Hydro-Québec. 2003. <i>Construction of the Sainte-Marguerite-3 Hydroelectric Development 1994-2002: Environmental Highlights.</i></p> <p>Milewski, J. et Corfa, G. 1998. <i>Building social trust between developers and stakeholders : the case of SM3 in Quebec.</i> Hydropower &amp; Dams, Issue Three.</p> <p>Ministère de l'Environnement du Québec. 1993. <i>Projet d'aménagement hydro-électrique Sainte-Marguerite-3.</i> Rapport d'analyse environnementale, Direction des projets en milieu hydrique, Dossier 3211-12-005, 383 p. + Annexe.</p> <p><i>Uashat mak Mani-Utenam Agreement.</i> 1994.</p> <p>International Energy Agency. 2005. <i>Implementing Agreement for Hydropower Technologies. Annex VIII: Hydropower Good Practices: Environmental Mitigation Measures and Benefits (Draft).</i> Case study on Minashtuk Project.</p>
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