

# GUIDE TO FISHERIES POLICY RESEARCH IN CAMBODIA — THE INSTITUTIONAL AND LEGAL CONTEXT

Sten Sverdrup-Jensen  
Poul Degnbol  
Mahfuzuddin Ahmed



DISCUSSION SERIES NO. 5

---

# Guide to Fisheries Policy Research in Cambodia – The Institutional and Legal Context

Sten Sverdrup-Jensen  
Poul Degnbol  
Mahfuzuddin Ahmed

Ver 3  
15/05/2006



# Guide to Fisheries Policy Research in Cambodia

## – The Institutional and Legal Context

Sten Sverdrup-Jensen  
Poul Degnbol  
Mahfuzuddin Ahmed

2006

Published by the WorldFish Center  
P.O. Box 500 GPO, 10670 Penang, Malaysia

Sverdrup-Jensen, S., Degnbol, P. and M. Ahmed. 2006. Guide to Fisheries Policy Research in Cambodia – The institutional and legal context. WorldFish Center Discussion Series No. 5. 44p.

WorldFish Center Contribution No. 1801

Printed by Yale Printers Sdn Bhd

This document has not been peer reviewed. The views presented in these papers are those of the authors and do not necessarily represent those of the WorldFish Center, its partners or the organizations that provided funding for the publication.

© 2006 WorldFish Center. All rights reserved. This publication may be reproduced in whole or in part and in any form for educational or non-profit purposes without the permission of the copyright holders provided that due acknowledgement of the source is given. This publication may not be copied or distributed electronically for resale or other commercial purposes without prior permission, in writing, from the WorldFish Center.



The WorldFish Center is one of the 15 international research centers of the Consultative Group on International Agricultural Research (CGIAR) that has initiated the public awareness campaign, Future Harvest.

# Contents

<b>1. Introduction</b>	<b>1</b>
1.1 The purpose of the guide	1
1.2 The scales and levels of fisheries management	1
1.3 Management institutions	3
1.4 The scale issue in fisheries management	5
<b>2. The role of research in relation to policy-making and management</b>	<b>7</b>
2.1 The international level	7
2.1.1 The issues	7
2.1.2 The institutional framework	9
2.1.3 The stakeholders	15
2.1.4 The role of policy research	18
2.2 The national level	19
2.2.1 The issues	19
2.2.2 The institutional framework	22
2.2.3 The stakeholders	24
2.2.4 The role of policy research	25
2.3 The local level	26
2.3.1 The issues	26
2.3.2 The institutional framework	30
2.3.3 The stakeholders	31
2.3.4 The role of policy research	33
<b>3. The role of policy research – a summary</b>	<b>34</b>
<b>4. References</b>	<b>36</b>
<b>Annexes</b>	<b>39</b>

## Acknowledgements

---

This “Guide to Fisheries Policy Research in Cambodia – The International and Legal context” was written as part of the First Phase of Technical Assistance for Capacity Building of the Inland Fisheries Research and Development Institute (IFReDI), Department of Fisheries, the Kingdom of Cambodia. The program was supported by the Asian Development Bank (TA-4563) and implemented by the WorldFish Center.

We put on record the encouragement we have received from Srun Limsong, Director of IFReDI; Renato Agbayani, Team Leader of the ADB TA-4563; and Touch Seang Tana, Member of the Economic, Social and Culture Observation Unit (OBSES) in developing the Guide.

We acknowledge the comments made by Dr. Chhun Chamnan, Deputy Director of IFReDI; Dr. John Kurien, Center for Development Studies, Trivandrum, India; Dr. Christopher Barlow, Manger, Mekong River Commission Fisheries Programme; and Roberta Gerpacio, the WorldFish Center – Philippines on the earlier drafts of the Guide. A number of professional and support staff members of the DOF and IFReDI also assisted during our field visits and we acknowledge their support.

Last but not least, we thank Dr. Kathleen Matics for her editorial effort, and Ng Li Ping and the Information and Knowledge Group of the WorldFish Center for overseeing the process of publication. However, only we, the authors, are responsible for any errors and omissions that remain.

Sten Sverdrup-Jensen  
Poul Degnbol  
Mahfuzuddin Ahmed



## 1.1 The purpose of the guide

**C**ambodia is in the process of developing skills and competence to prioritize and address research issues for the different levels of fisheries policy and management. This involves the acquisition of knowledge in institutional economics, political science and organizational sociology, and in appropriate research methodologies.

This guidebook discusses key policy issues and the existing institutional and legal framework for inland capture fisheries management in Cambodia at the international, regional, national and local levels. It further identifies who the stakeholders are and the critical areas for policy research to provide input to policy-making and adaptive management. The book's target audience are those with an interest in the management of inland fisheries in Cambodia including the Inland Fisheries Research and Development Institute (IFReDI) staff and people involved in formulating fisheries policies, developing institutions related to fisheries, and/or designing of fisheries management measures.

The inland capture fisheries in Cambodia are dominated by the resources of the Mekong River and its tributaries including the Tonle Sap system. Transboundary issues largely relate to the Mekong River. The main focus of the present guidelines is, therefore, on this system.

The guidebook was initially drafted in May 2004 and has been updated to include new institutional developments up to April 2006.

## 1.2 The scales and levels of fisheries management

Fisheries policy and management in Cambodia addresses issues and concerns on different administrative and geographic levels and relates to different groups of stakeholders with different interests. Both the institutional set-up (laws and regulations and management organization) and the need for research related to policy-making and management reflect these different levels of policy and management.

At the *international (regional) level*, the issues and concerns relate to the joint management of shared living aquatic resources and the management of water resources and habitats with critical implications for fisheries productivity. The stakeholders at this level are national governments,

---

international government organizations and international NGOs. To the extent that they exist, national associations of aquatic resource users are stakeholders as well. The legal framework consists of international conventions (such as the Convention on Biodiversity, 1992), guidelines (e.g. the FAO Code of Conduct for Responsible Fisheries, 1995) and agreements (including the Mekong River Commission (MRC) Agreement, 1995). **Policy research** focuses on the relevance of international treaties, etc., in supporting national sector goals, as well as the establishment of appropriate institutional frameworks for the implementation of such treaties.

At the *national level*, the issues and concerns are those tied to international problems and overall management objectives -- poverty alleviation, food security, production, biodiversity, equity and efficiency, and management of water resources and habitats on which fisheries productivity depends. Often the specific fisheries sector policy issues come under four headings: structural policy, conservation policy, market policy, and enforcement and control policy. At the national level, the stakeholders are the resource users and the people involved in fish processing and distribution, the consumers, political parties, fisheries departments and other line agencies, NGOs and project donors. The legal framework is the Fisheries Management and Administration Law and associated sub-decrees and proclamations. The focus of policy research is on governance. **The role of policy research** includes the identification of the stakeholder interests, the clarification of the trade-offs between policy objectives, the clarification of the management means and options, and the assessment of the management impacts.

At the *local level*, the issues and concerns are resource access, user rights and protection of interests, resource user conflicts, fisheries infrastructure, external influences, and alternative livelihoods. Stakeholders are resource users, people in the processing and distribution chain, consumers, community fisheries (groups that are part of the new community fisheries management policy), government line agencies at the national, provincial and district levels, commune councils, NGOs and project donors. The legal framework includes the Fisheries Management and Administration Law and associated sub-decrees and proclamations, the local fisheries management plans and traditional, informal laws. At this level, **policy research** focuses on the identification of stakeholder interests, the trade-offs between management options, the means of management (technical and institutional aspects), and the outcome of management (in terms of resource sustainability, equity, and efficiency).

---

### 1.3 Management institutions

A modern “institutionalist” social scientist tends to define the word “institution” more broadly than a layperson. The latter’s understanding of the word is of a large organization (e.g. a hospital) or social patterns that persist over long temporal and spatial scales (e.g. the family). These are certainly institutions, but from an analytic perspective any pattern of behavior that persists over time does so because of some set of shared understandings, and those sets of understandings are also institutions. Therefore, an informal or formal fisheries management arrangement that has been operating and adhered to for some time might be considered an institution.

Scott (1995) offers a definition of institutions that is instructive: "Institutions consist of cognitive, normative, and regulative structures and activities that provide stability and meaning to social behaviour." Often people think only of the regulative aspects of institutions. The point of institutions is that they cause behavior and rules are pattern descriptors. However, institutions also have a cognitive aspect. They define the meanings of things. Finally, institutions have a normative aspect, i.e. the behavior they fashion is seen as normal behavior. Every aspect of a functioning institution contains cognitive, normative and regulative dimensions.

Fisheries management institutions can be characterized along three dimensions as follows<sup>1</sup>:

- a) *The degree to which they incorporate hierarchical governance mechanisms*: Most natural resource management regimes in developed countries that deal with commonly owned resources such as fisheries are fundamentally a form of hierarchical governance in which a central agency representing a government makes management decisions, which have the force of law and are enforced by government agencies. Other management institutions are usually rooted in, and take place within the hierarchical system. The reasons for this are threefold. First, and most fundamentally, when natural resources are considered as “the commons”, they often belong to all the citizens, and it is the responsibility of the government to manage those regimes on their behalf. Second, hierarchical governance systems are the most effective basic approach to

---

<sup>1</sup> a) through c) are cited from Motos and Wilson (2006).



---

the management of resources that cover a large geographical scale because they produce relatively predictable outcomes across wide areas.

However, they pay an important price for this in both local legitimacy and support and have to make decisions based on more limited information than is available on smaller scales (Wilson 2003). Finally, hierarchical governance systems are able to respond and deal with problems where negotiated outcomes are difficult to achieve. Where management faces problems with multiple jurisdictions and competition over resource allocation, such decisions are best made by the central authorities.

*b) The degree to which they incorporate market-oriented governance mechanisms:* The great strength of market-oriented governance mechanisms is that they are able to produce a spontaneous order from decentralized decisions governed by the laws of supply and demand. For this they are dependent on well-defined property rights. Markets allow the knowledge of the whole society about certain simple questions to be mobilized -- for example, there are hundreds of different kinds of screws, and the market is able to accurately determine how many of each kind should be made. The same power applies to fishing decisions so that markets are able to determine how much of what kind of fishing should be done to maximize the material benefit of the whole society. Markets work according to competition that is expressed through the allocation of resources at the margin: whoever makes the best decision about the investment of the last fishing boat bought or the last hour of fishing effort made will out-compete all rivals. The problems with markets as governance mechanisms appear when the basic assumptions of the market model do not apply for political, social or ecological reasons. When margins are large or irreversible, the market is much less effective at allocating resources. Certain types of commodities, such as labor, and sometimes land and natural resources, defy the assumptions of the market model because they cannot be valued at zero (if necessary to clear the market) (Polanyi 1944). Markets depend on actors seeking to maximize their profits while natural resources are limited. Markets are undermined in the long run because competition tends to be self-eliminating as losers go out of business. The corrosiveness of economic self-interest on the moral context on which the market depends is destructive (Weber 1978). And, crucially important to the current discussion, markets fail when property rights are weak or unclear.

---

c) *The degree to which they incorporate civil-society governance mechanisms*: In their discussion of fisheries co-management, Jentoft and McCay (2003) take from Walzer (1995:7) the following definition of civil society: “the space of un-coerced human association and also the set of relational networks formed for the sake of family, faith, interest, and ideology - that fill their space”. The central importance of civil society governance derives from the advantages of communications and information sharing made possible by a richer set of relationships than those presupposed by the market or hierarchical governance approaches alone. Both bureaucracies and markets depend on semi-automated communications that simplify interactions, with the former depending on commands backed up by sanctions and the latter on “take it or leave it” exchanges. All of these involve some degree of coercion, which makes it possible for the institutions to function predictably over large scales. For this reason, they communicate poorly the kind of complex information that requires background information and question-and-answer interactions that seek to convince people that something is true. Hence, they must be supplemented by civil-society mechanisms -- such as networks, small-scale organizations, and interactive fora -- which make it possible for participants in management to exchange valuable information (Wilson 2003). Such information is critical to the enforcement of management measures, and it is also crucial to the development of an accurate knowledge base. The drawback of civil-society governance is that it works poorly across large scales. Nested systems and other forms of representation are the institutions that structure civil-society governance over large scales and, while this is possible to some degree, representation has to be supported by top-down rules of selection that reintroduce the drawbacks of hierarchical governance.

#### **1.4 The scale issue in fisheries management**

Fisheries management is about achieving objectives related to both societal benefits and biological sustainability. Fisheries management is decided and implemented through institutions. The societal benefits, biological resource system and management institutions are associated with a certain *scale*. Societal benefits from alternative resource uses may accrue locally, as in the case of subsistence fishing in a river system. Or they may accrue on a regional or international level, as in the case of exports of high-value fishery products or the use of electricity from hydropower dams, which interfere

---

with fisheries production. Fisheries resources may be produced entirely within a local system, but that is the exception. Fish normally undertake some kind of migrations that may range from local migrations between various habitats to extensive longitudinal migrations on a scale of from hundreds to thousands of kilometers. The productivity of local fisheries resources is also dependent on what happens elsewhere, such as when the local flooding regime is changed as a consequence of hydraulic regulations upstream. Management institutions must match the scales of both the benefits and the resources.

### 2.1 The international level

#### 2.1.1 *The issues*

**M**any aspects of fisheries management in the Mekong River require international coordination, either because fish populations migrate across national boundaries or because the aquatic habitats crucial to the life cycle of fish populations are affected by up- or downstream changes in the environment. The two types of international interdependencies relate to different human interventions and require different institutions.

#### *Joint management of shared living aquatic resources<sup>2</sup>*

With regard to managing fishing effects and sustaining the integrity of habitats, the first requirement is improved information on where the species and stocks are: (i) transboundary, (ii) shared between regions/countries, and (iii) vulnerable to threats. Collecting this information involves activities at both the national and local levels.

The second desired step is to "declare" the relevant species or stocks as transboundary resources (and between which countries they are shared). This can be done without specifying what particular management measures are required. An example of a template for the identification of transboundary issues is provided as Annex 1.

Some mechanisms to facilitate this already exist under the Convention on the Conservation of Migratory Species and a parallel or similar process can be facilitated under the umbrella of the MRC Agreement. These can help focus the attention of policy-makers and managers on the special status of such species/stocks and, therefore, should consider both local objectives and obligations under international agreements.

In the short-term, the emphasis should be on developing appropriate procedures for co-operation at the international level in harmony with relevant national and local initiatives. The best opportunities are the high profile species (e.g. the giant Mekong fishes), and/or vulnerable habitats (such as flooded forests and deep pools), where a reasonable consensus on

---

<sup>2</sup> Mainly taken from Coates et al. (2000), a presentation prepared for the MRC Fisheries Programme Technical Symposium in 2000 that discussed in detail the transboundary issues in relation to migrating fish stocks and the need for management.

---

the priorities and need for action already exists among the countries of the Mekong region.

There are already developments in this direction. For example, the banning of larvae/juvenile bagnet (*Dai*) fisheries in Viet Nam (for collecting fingerlings for catfish culture, but with an excessive amount of discarded catch) is, at least in part, owing to concerns by Cambodia on the possible impacts on recruitment for the Cambodian capture fishery. The effectiveness, locally, of this fledgling management initiative for transboundary stocks is, in the short-term, of secondary importance to the development of the mechanism itself.

Informal understanding of the status of relevant stocks among fisheries specialists should be encouraged, but is not a substitute for clearer, formal mechanisms. The primary reason for this is that management requirements ought to consider activities in other sectors besides fisheries.

Improved management of the movement of living genetic material (exotic species and exotic strains of native species) can already be promoted using existing general guidelines (FAO 1995; Bartley et al. 1996; Coates 1998; Convention on Biological Diversity 1992). These can be promoted under the MRC Agreement and other regional frameworks for co-operative management. The immediate task is to develop specific detailed protocols for the Mekong region, including a strategy to implement policy guidelines. Initiatives in this area are already underway, facilitated by the Network of Aquaculture Centres in Asia-Pacific (NACA).

The 1995 Mekong Agreement, hence, requires that intentions be converted into management policies and actions including, where possible and appropriate, developing and applying existing guidelines to the local circumstances in the Mekong region. This, in turn, can be facilitated by the division of the basin into ecologically appropriate units, which can be effectively managed at the appropriate level. In this process it is critical to consider the need for the various management units (areas) to implement management schemes consistent with requirements for the next "higher" unit, ultimately up to the transboundary and basin-wide levels (Hoggarth et al. 1999). It is equally critical to identify which parties are responsible for managing which parts of the management system. An effective management system will be one where management occurs at the appropriate level, but

---

the combined efforts of individual, group, community, district, provincial, national and international actions lead to the sustainability of the resources (including habitats that support them) at the basin-wide level.

While the theoretical requirements for co-operative management of transboundary resources are relatively easy to identify, the difficulties of implementing effective measures should not be underestimated. The Mekong Agreement requires co-operative management in areas well beyond those of transboundary fish stocks and, in particular, of the much more potentially controversial area of international water management agreements for shared water resources. The significant challenges for developing appropriate co-operative arrangements for international river basins, and the critical need to do so, have been well argued and identified (Bernauer 1997; Gill 1996; Young 1989) and especially so for the Mekong River Basin (McAdam and Binh 1996; Quang 1996; MRC 1998).

In the Mekong River Basin, a significant opportunity currently exists to frame the development of management mechanisms for transboundary fish stocks within the broader objective of stimulating improved international co-operation on the joint-management of shared resources. This can be promoted relatively easily as high profile stocks can be identified where the management requirements may not be controversial (although not necessarily easy to implement). The spin-off benefits are very significant, as are other strategic initiatives in relation to the much more complicated and potentially controversial requirements under, for example, the MRC Water Utilization Programme (WUP) and the Basin Development Plan (BDP).

### ***2.1.2 The institutional framework***

Four existing international conventions, agreements and arrangements appear to be adequate to at least begin international co-operative management of shared resources. These are the following: (1) the Convention on the Conservation of Migrating Species of Wild Animals (CMS); (2) the FAO Code of Conduct for Responsible Fisheries; (3) the Mekong Agreement; and (4) the Convention on Biological Diversity (CBD).

#### ***(1) The Convention on the Conservation of Migrating Species of Wild Animals (CMS)***

The need for countries to co-operate on the conservation of animals migrating across national borders was recognized at the United Nations

---

Conference on the Human Environment in 1972. Based on this recognition, the CMS was concluded in 1979 and came into force in 1983. The CMS is a framework convention within which contracting parties can develop specific conservation measures for individual species or species groups within their range. Its main objective is to conserve, over their whole range, migratory species of endangered or “unfavourable” conservation status. (Endangered species are listed in the CMS Appendix I, and species with “unfavourable” conservation status in its Appendix II.)

As of 1 June 2000, 68 parties (States or regional economic integration organizations constituted by sovereign States) have signed the Convention. None of the six countries bordering the Mekong River are parties to the CMS. The parties are "encouraged to take action with a view to concluding agreements for any population or any geographically separate part of the population of any species or lower taxon of wild animals, members of which periodically cross one or more national jurisdiction boundaries" (Article IV, Paragraph 4 of the Convention). Although the Convention is not restricted to any particular taxa, its main focus is on mammals and birds. For example, its Appendix I lists 25 mammals, 51 birds, and eight reptiles, but only one fish species; its Appendix II has a similar bias. The single fish species listed in Appendix I is the Giant Mekong catfish, *Pangasianodon gigas*, although none of the riparian countries of the Mekong region is a Party to the Convention.

The Secretariat of the CMS envisages a greater role of the Convention in co-operation and co-ordination with other related conventions, particularly the Convention on Biological Diversity (CBD) (See item 4 below). Specifically, the CMS is expected to become "the special instrument for the implementation of the CBD with regard to migratory species" and "a network for all regional agreements aiming to conserve migratory species throughout their migration range". The Secretariat of the CMS also recognizes that biodiversity-related conventions require many different players for their successful implementation at the local, national, regional and global levels.

Although the CMS is the only instrument that deals specifically with transboundary animals, it lacks recognition in the Mekong region. Therefore, efforts are underway to increase its profile in the region, and to apply it in conjunction with the Convention on Biological Diversity (CBD).

(2) *The FAO Code of Conduct for Responsible Fisheries (1995)*

This voluntary code (FAO 1995) is extensive in terms of recommended good practice and policy development for both capture fisheries and aquaculture. Most of the code is relevant to the management of most fish stocks, including transboundary stocks. Sections of Articles 6, 7 and 9 that have relevance to specific transboundary issues (in the current context) are as follows:

Article 6.12 - "States should co-operate at sub-regional, regional and global levels ... to promote conservation and management, ensure responsible fishing and ensure effective conservation and protection of living aquatic resources throughout their range of distribution, taking into account the need for compatible measures in areas within and beyond national jurisdiction";

Article 7.1.3 - "For transboundary fish stocks, straddling fish stocks, highly migratory fish stocks where these are exploited by two or more States, the States concerned should cooperate to ensure effective conservation and management of the resources. This should be achieved where appropriate through the establishment of a bilateral, sub-regional or regional fisheries organisation or arrangement";

Article 7.3.1 - "To be effective, fisheries management should be concerned with the whole stock unit over its entire area of distribution and take into account previously-agreed management measures established and applied in the same region, all removals and the biological unity and other biological characteristics of the stock. The best scientific evidence available should be used to determine, *inter alia*, the area of distribution of the resource and the area through which it migrates during its life cycle";

Article 7.3.2 refers to the need for management by States for transboundary stocks to be compatible and achieved in a manner consistent with the rights, competences and interests of the States concerned.

Article 9 of the code refers to responsible aquaculture development. The following two statements are especially relevant to transboundary stocks:

Article 9.1.2 - "States should promote responsible development and management of aquaculture, including an advance evaluation of the effects of aquaculture development on genetic diversity and ecosystem integrity";



---

Article 9.3 refers to the responsible use of genetic resources. Article 9.3.1, in particular, stipulates that "States should conserve genetic diversity and maintain integrity of aquatic communities and ecosystems by appropriate management. In particular, efforts should be undertaken to minimise the harmful effects of introducing non-native species or genetically altered stocks used for aquaculture including culture-based fisheries into waters, especially where there is a significant potential for the spread of such non-native species or genetically altered stocks into waters under the jurisdiction of other States..."

In a transboundary context, this code is perhaps the most detailed existing instrument pertaining to responsible fisheries management. However, it lacks detailed guidelines for specific regions, fisheries or species. Naturally, it is left to the States in question to develop these under the framework of the FAO Code of Conduct (and other codes/agreements). Specific guidelines have been developed for inland fisheries (FAO 1997).

*(3) The Agreement on the Co-operation for the Sustainable Development of the Mekong River Basin (The Mekong Agreement)*

This agreement, made in 1995, is between the four riparian countries of the Lower Mekong Basin, namely Cambodia, the Lao P.D.R., Thailand and Viet Nam. The Agreement states (amongst other things) that the Parties shall "co-operate in all fields of sustainable development, utilization, management and conservation of the water and related resources of the Mekong River Basin, in a manner to optimize the multiple-use and mutual benefits of all riparians and to minimise the harmful effects that might result from natural occurrences and man-made activities" (Chapter III, Article 1), and "protect the environment, natural resources, aquatic life and conditions, and ecological balance of the Mekong River Basin from pollution or other harmful effects resulting from any development plans and uses of water and related resources in the Basin" (Chapter III, Article 3). It is also the instrument under which the MRC, including its Council, Joint Committee and Secretariat, derive their formal status. It is, by both definition and intent, a co-management initiative stimulated by the obvious need to manage shared resources in an international river basin context. The MRC's transboundary role is stressed in its strategic plan and in most of its programs.

The Mekong Agreement is the most obvious framework under which to consider the management of transboundary fisheries stocks in the Lower Mekong Basin. At the activity level, the Agreement itself refers (amongst

---

other things) to the development of rules for water utilization (WUP) and a "basin development plan" (BDP) that is to be used to categorize and prioritize projects. Both of these need to incorporate management considerations for transboundary stocks.

The main strengths of the Agreement stem from it having specific regional relevance to the four countries in question. It signals, at the highest political level, a desire to co-operate on the management of water and related resources in the Lower Mekong River Basin. Importantly, the Agreement is supported by a Commission that has an infrastructure to develop management advice, and a Council and a Joint Committee to implement management measures through national committees to line-agencies and beyond.

The Agreement, however, has some weaknesses. The first that it does not embrace the other two riparian States in the basin, namely Myanmar, where only a small part of the basin is included, but which might well include critical habitats, and more importantly, China that significantly impacts upon mainstream water resources, but is known to share important fish stocks with the other countries (See Table 1 in this document). The second is that the Agreement's text lacks specific technical details to formulate relevant guidelines for policy development, although it is the task of the Secretariat, through the WUP and the BDP, among other mechanisms, to develop these. The third is that, although the Agreement promotes dialogue and joint management of resources through consensus and consultation, actual binding agreement between the relevant countries is only required for certain types of mainstream projects. For example, major tributary schemes only require notification despite the transboundary character of some of the major tributaries. Nevertheless, the Agreement does enable any country, based on sound evidence, to notify and seek compensation for the harmful effects incurred because of activities in another country. The strengths, weaknesses, opportunities, and role of the MRC Commission itself are discussed convincingly in the Mekong River Commission Strategic Plan (1998). The MRC Commission remains the major potential forum under which management measures for transboundary stocks can be facilitated in the Lower Mekong Basin.

#### *(4) The Convention on Biological Diversity (CBD)*

The Convention on Biological Diversity (CBD) arose from growing awareness at the highest government level of the rapid destruction of

---

biodiversity and the need to take significant action to conserve it. The Convention was adopted in Nairobi in May 1992 by the Intergovernmental Negotiating Committee for a Convention on Biological Diversity and subsequently was opened for signature at the United Nations Conference on Environment and Development (UNCED) in June 1992. All of the riparian countries of the Mekong River Basin either signed the Convention then, or have subsequently ratified it.

The Convention recognizes the jurisdiction of States over their own resources and that poverty eradication is an overriding priority for developing countries, but commits the Parties (States) to the objective of "...the conservation of biodiversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources" (Article 1). In addition, the CBD makes specific reference to the need for States to manage transboundary resources. For example, the contracting party shall "ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction" (Article 3); and the provisions apply "...regardless of where the effects occur - within the area of national jurisdiction or beyond the limits of national jurisdiction" (Article 4). In addition, Article 8 (g) refers to the need for States to better manage transfers of native species. Specifically, it refers to "living modified organisms", but the definitions used place all native stocks being moved in this category.

The CBD is by far the most comprehensive instrument currently in place for the management of transboundary fisheries stocks in the Mekong River Basin, under which several very detailed protocols have been developed. Most importantly, it is the only known relevant agreement that is legally binding among the six riparian countries of the Mekong River Basin. Article 14 refers to "liability and redress, including restoration and compensation for damage to biological diversity, except where such liability is a purely internal matter" (although the specifics of this are yet to be agreed). The intimate linkage between biodiversity and sustainable exploitation of resources (especially in inland fisheries) makes the CBD a potentially powerful instrument under circumstances where the resources that are important to the fishery become vulnerable or threatened. This can be either through impacts from within the fisheries sector (e.g. fishing effort, introductions and transfers), or from other sectors (such as habitat degradation).

---

However, the major constraint with the CBD is that its implications for fisheries and fisheries-environment related management are yet to be fully acknowledged by all the appropriate stakeholders. The Convention was signed or ratified at the highest national government level, clearly indicating official national policy under which sector policies should be based, and likewise providing an opportunity, where necessary, to promote and implement improved international resources management initiatives relevant to the fisheries sector.

### ***Opportunities and recommendations for improving the management of transboundary stocks***

A preliminary and simplified management system for transboundary stocks, including initiatives and activities at the international, national and local levels, is illustrated in Figure 1.

#### ***2.1.3 The stakeholders***

At the international level, the stakeholders for fisheries policy-making and management are those government institutions responsible for the overall national policies and international relations, such as: a) the governments of the four riparian countries in the Lower Mekong River Basin; b) the international community including such organizations as the FAO and agencies representing relevant international conventions and agreements; c) the Mekong River Commission (MRC); and d) regional associations of resource users (if/when established in the future). The Governments of China and Myanmar may also be considered as stakeholders to the extent that the fish species in question migrate to the upper parts of the Mekong River Basin.

One particular stakeholder at the international/regional level is the Technical Advisory Body for Fisheries Management (TAB), a riparian institution established in 2000 as an output of the MRC Fisheries Programme. The TAB members are high-ranking representatives from national fisheries line agencies and the four National Mekong Committees. The TAB objective is “to promote uptake of regional concerns in national fisheries policies and action plans”. The regional concerns identified include: i) transboundary/migratory fish; ii) impact on fisheries from the outside; iii) common interests such as culture of indigenous fish species and fisheries co-management; and iv) regional/global principles of governance. The TAB initiatives include strengthening of fisheries management capacity, creation of knowledge

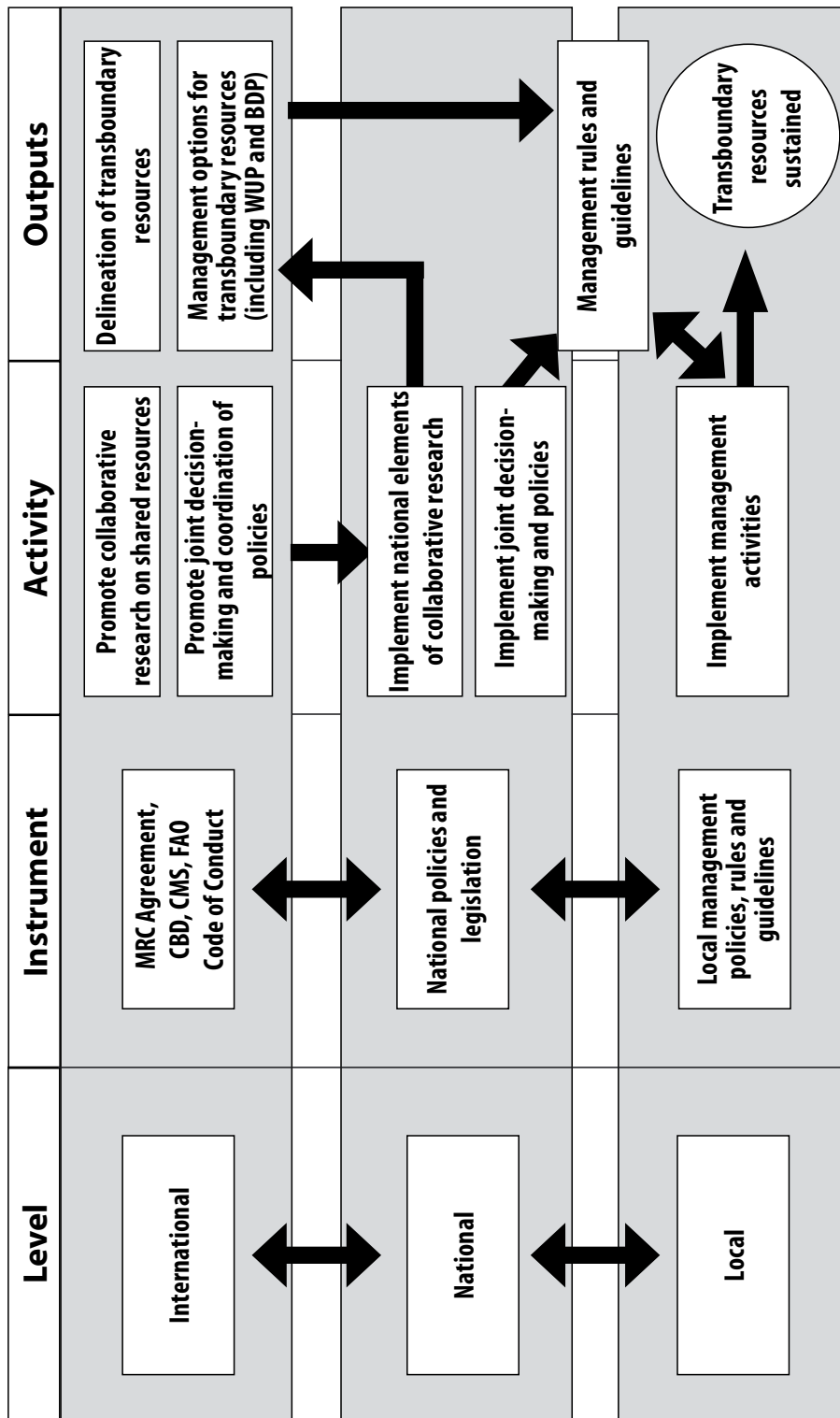


Figure 1. A possible management system for Mekong River transboundary fish stocks  
 Source: Coates, et al. (2000)

---

for management through research and application of research results, and facilitation of the information flow among all those concerned with fisheries management and development from local users to policy-makers.

At the national level in Cambodia, the stakeholders involved in international fisheries policy and management are the government institutions responsible for international relations such as the National Assembly, the Prime Minister's Office, the Ministry of Foreign Affairs and International Cooperation, and the Cambodia National Mekong Committee. Other stakeholders are the ministries and agencies that are either directly involved in managing the fisheries sector such as: the Ministry of Agriculture, Forestry and Fisheries (MAFF), or are affected by/affecting fisheries management measures. These are: the Ministry of Environment, the Ministry of Water Resources and Meteorology, the Ministry of Rural Development, the Ministry of Public Works and Transport, the Ministry of Industry, Mines and Energy, the Ministry of Planning, the Ministry of Land Management, Urbanization and Construction, the Ministry of Rural Development, and the Ministry of Tourism. Civil society organizations in Cambodia such as the Fishing Lot Owners Association and Community Fishery Organizations also have a stake in the international fisheries policy and management issues.

National stakeholders also include national associations of fishers, fish traders and processors to the extent that such associations exist at the national level. Their members are involved in the day-to-day implementation of the management measures that are internationally agreed upon and are among the main beneficiaries of international management collaboration.

The Cambodia National Mekong Committee (CNMC) could play a particular role in the establishment of an agreement on the management of transboundary fish stocks in the Mekong River Basin under the framework of the "Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin, 1995". The CNMC is a national institution operating directly under the Royal Government of Cambodia. It assists and advises the latter in all matters related to the formulation of water policy, strategy, management, preservation, investigation, planning, restoration, and development of the water and related natural resources of the Mekong River Basin within the whole country, towards attaining sustainable development of the national economy and infrastructure for the benefit of the country and its people.

---

Representatives of the following ministries are members of the CNMC:

- Ministry of Public Works and Transport
- Ministry of Water Resources and Meteorology
- Ministry of Environment
- Ministry of Agriculture, Forestry and Fisheries
- Ministry of Foreign Affairs and International Cooperation
- Ministry of Industry, Mines and Energy
- Ministry of Planning
- Ministry of Land Management, Urbanization and Construction
- Ministry of Rural Development, and
- Ministry of Tourism.

The CNMC mandate includes the following responsibilities:

- To investigate and submit to the Royal Government of Cambodia for its perusal all matters related to the planning and formulation of strategy for the development, management, and preservation of water and other related natural resources in the Mekong River Basin;
- To cooperate, advise, and monitor other units of the Ministries concerned, provinces, and towns, for the implementation of all relevant decisions of the Royal Government of Cambodia relating to the Mekong River;
- To promote cooperation with the NMCs of all the MRC international member states, donor countries and various international organizations in the analysis, study and development, management, and preservation of water and other related natural resources of the Mekong River, consistent with the equal, reasonable benefit for all member states; and
- To effect coordination and arrangement with the MRC and donor community to mobilize funds to promote the study and development of projects efficiently and effectively.

#### ***2.1.4 The role of policy research***

Policy research should primarily support the establishment of appropriate institutions for the international management of transboundary fish stocks in the Mekong River Basin as discussed above. This would include legal and organizational aspects at various levels, issues related to enforcement, monitoring, and impact assessment. The type of research to be undertaken by

---

the Inland Fisheries Research and Development Institute (IFReDI) to support policy development, policy measures and policy implementation would relate to the following set of activities:

1. Identification of transboundary resources and habitat linkages;
2. Identification of societal benefits from resource and habitat use;
3. Clarifying options and trade-offs for policy objectives;
4. Clarifying management means; and
5. Monitoring and reporting on outcomes, and disseminating information to the scientific community, policy-makers and administrators, resource users, and the general public.

## **2.2 The national level**

### ***2.2.1 The issues***

At the national level, the issues and concerns for policy research relate to the overall fisheries development objectives. For example, Cambodia's Fisheries Development Action Plan 2005-2008 states as its three primary development objectives the improvement of the livelihood of rural poor people, the enhancement of food security, and the sustainable development and equitable use of the fisheries resource base.

Internationally, national fisheries policy issues often come under the following four headings: a) structural policy; b) conservation policy; c) marketing policy; and d) inspection and enforcement policy.

#### ***Structural policy***

Structural policy is first and foremost about access rights to exploit living aquatic resources (fish and other aquatic animals) – in other words, who is allowed to fish what, where, when, in what way, and on what terms. Structural policy also concerns what overall exploitation system should be applied and for what reasons. In Cambodia, a three-pronged exploitation system has been in place for more than 100 years, consisting of: a) commercial-scale, b) middle-scale, and c) small- (family) scale fisheries. Commercial fisheries were traditionally (and to some extent still are) structured in a way so that the generation of resource rent from the fisheries could (can) be maximized and collected for the public benefit through the



---

allocation of limited (in time and space) exclusive access rights by means of a public auction. The middle-scale fisheries are licensed fisheries where access to fishing grounds requires the payment of an annual license fee. Here, the overall policy objective traditionally was to collect a resource rent for the Treasury. Small-scale fisheries were in principle open access, free-for-all fisheries in designated areas of the fisheries domain. The overall policy objective for small-scale fisheries was food security and subsistence for the rural population. All three systems apply rules that are specified in the Fisheries Law and other regulations. Some of these rules serve structural policy objectives whereas others serve conservation policy objectives.

Since 2002, Cambodia has seen major shifts in its structural policy. More than half of the space traditionally allocated to commercial fisheries has been re-allocated to small-scale “Community Fisheries” to support food security and livelihoods for an ever-expanding rural population. More “concession areas” are likely to be re-allocated between commercial and small-scale fisheries in the future. A new system in Cambodia called “Community Fisheries” regulates access to fish in managed areas through local management plans agreed upon by co-management institutions.

Structural policy also refers to aquaculture production. For example, what production systems and species should be promoted (through incentives, extension services, etc.), and what should be avoided (through prohibition, dis-incentives, etc.) to ensure both economic and environmental security? Finally, structural policy concerns fisheries infrastructure (construction of jetties for fish landings, fish markets, etc.), and the structure and functioning of the Cambodian post-harvest industry, fish transportation system, etc.

The structural policy priorities adopted by Cambodia include the following according to the MAFF Fisheries Development Action Plan 2005-2008 (MAFF 2004):

- Increasing more areas for family fishing through fishing lot reforms;
- Community-based fisheries management to promote local participation in fisheries management linked to livelihood diversification; and
- Increasing community and household production levels through rural aquaculture development.

These three priorities will require strengthened capacity of fisheries authorities at the central, provincial and local levels as well as capacity

---

building with already-established Community Fisheries Organizations<sup>3</sup>. New Community Fisheries Organizations will have to be established in the re-allocated areas. After a year's development process, the "Community Fisheries" co-management institutional framework was finally clarified in May 2005<sup>4</sup>. This will provide for the institutionalization of the management framework through the establishment of "Community Fisheries" formation procedures, drafting of "Community Fisheries" model by-laws, "Community Fisheries" agreements and guidelines for the development of "Community Fisheries" fishing plans.

### *Conservation policy*

Traditionally, fisheries policy in Cambodia has had a strong focus on resource conservation. This is manifest in the national fisheries legislation that specifies the following conservation measures:

- Closed seasons and areas;
- Establishment of fish sanctuaries;
- Fishing gear regulations and ban on destructive practices;
- Habitat protection measures; and
- Aquaculture prohibitions.

The limited access lot fishing system indirectly caters to resource conservation as it provides incentives for the lot lessees to protect important fish habitats such as, for example, flooded forests from fuelwood cutting and/or conversion into rice fields.

The 2005-2008 policy priorities of the Cambodian Government that relate to fish conservation include stock enhancement through conservation and research, and local participation in fisheries management (i.e. Community Fisheries Organizations).

Meanwhile, conservation measures mentioned in the Fisheries Development Action Plan include:

- Determining and marking of the boundaries of flooded forest sites with restricted access, preventing damage to the remaining flooded forests;
- Replanting of deforested areas;

---

<sup>3</sup> By October 2005 some 400 Community Fisheries had been established throughout Cambodia.

<sup>4</sup> By adoption of the Royal Decree on Establishment of Community Fisheries and Sub-decree on Community Fisheries Management (May 2005).

- Conducting awareness campaigns as well as improving the school curriculum to inform people, including children, of the importance of fish resources and the damaging impact of using destructive illegal fishing gears;
- Restoring lakes and canals where siltation has reduced water depths;
- Transforming fishing lots in good environmental condition into conservation zones, and making the deep pools in the upper Cambodian Mekong River system closed areas or conservation zones (these measures, however, need justification from research); and
- Diversifying livelihoods to reduce the pressure on the natural resource base.

### ***Marketing policy***

Traditionally, policy focus on post-harvest and fish marketing issues has been limited, mainly because most of the fish in Cambodia are consumed fresh or kept by the fishing households and made into long-lasting subsistence products by traditional curing techniques such as fermenting, drying, smoking and steaming. Some fresh fish may be bartered for rice or sold in local markets for similar uses by non-fishing households. The marketing and distribution networks in freshwater fisheries are well established and largely in private sector hands. Marketing channels for marine products are not so developed as the domestic market is quite small and confined to mostly marine areas. The export of fishery products from Cambodia is rather limited compared to the total catch, but it is growing as a consequence of domestic and global trade liberalization and increasing international demand. In 2004, exports amounted to some 24,000 tonnes, but this figure may be substantially higher if unrecorded exports were included. In 2003, Cambodia was admitted to the World Trade Organization (WTO).

There is at present no legislation in Cambodia dealing with live aquatic animal health protection. Also, there is no legislation in place dealing with the safety and quality control of fish products. The marketing policy priorities adopted for 2005-2008 include the development of an institutional framework for post-harvest activities in Cambodia. This intends to address the need for improved quality of fish products for local/domestic consumption and is part of the diversification strategy. The institutional framework will also cater to the needs accruing from the sale of fish and fish products to increasingly globalized export markets. (At present, Thailand is the major export market for Cambodian fish and fish products.)

---

Details on fish marketing in Cambodia, including the pertinent policy issues, can be found in the CFDO-IMM report, Cambodia Post-Harvest Fisheries Overview (September 2005).

### ***Inspection and enforcement policy***

Law enforcement is among the medium-term priority actions of the Government following the revision of the legal framework (Fisheries Law and Decrees; MAFF 2004). This includes enhanced extension services to increase the awareness of fish resource users on fisheries legislation and regulation. It also includes training of all fisheries administration staff to ensure good governance, transparency and effective service delivery.

### ***2.2.2 The institutional framework***

The national Fisheries Law is the foremost legal basis for fisheries management in Cambodia. This law, last revised in 1987, has been under review since 1999. The National Assembly ratified the new Fisheries Law in March 2006.

The first four chapters of the Fisheries Law establishes the “fisheries domain”, i.e. the biophysical area where the Law is applied, and the state fisheries management institutions including the National Fisheries Policy Committee headed by the Minister of Agriculture, Forestry and Fisheries (MAFF), with members from other relevant ministries. The mandate of the Committee includes “studying and determining the National Fisheries Policy effectively” and advising the Government on the five-year National Fisheries Management Plan that the MAFF’s Department of Fisheries will submit periodically.

The legal provisions for the *structural policy* are found in the Fisheries Law’s Chapter 7 on “The Management of Fisheries Exploitation”; Chapter 8 on “Inland Fisheries Exploitation”; Chapter 9 on “Marine Fisheries Exploitation”; Chapter 10 on “Aquaculture Management”; and Chapter 11 on “Community Fisheries”. Chapter 7 states that “family-scale fishing shall be operated at anytime in the open-access area and in the family-scale fishing areas, in fishing lots during the closed season or in marine fishery domains by using small-scale family fishing gears. Middle-scale fishing shall be operated only in the open-access area of inland or marine fishery domains by using middle-scale fishing gears. Industrial fishing shall be operated only in fishing lots of inland or marine fishery domains by using large-scale fishing gears”.

---

The provisions for the *conservation policy* are found in Chapters 5 on “Fisheries Protection and Conservation” and Chapter 6 on “Mangroves and Inundated Forests Management”. Chapter 5 stipulates “rapids, deep pools located in rivers, Tonle Sap Great Lake, lakes, inundated forests, islands, seagrass areas, coral reef areas, and mangrove forests which are important for fisheries resources” as Fisheries Resources Protected and Conservation Areas. The chapter also has provisions for environmental impact assessment (EIA) in connection with “building dams/dikes across the lakes, streams, affluents, rivers or any navigated canals, and digging canals, ponds, holes, reservoirs, natural reservoirs and other constructions that could cause damage to fisheries resources in fishery domains”. The chapter further stipulates that the following activities are prohibited:

- “Expanding agriculture lands or using lands in the protected inundated areas for all purposes other than the development of fisheries;
- Issuance of land titles in protected inundated areas;
- Cutting, reclaiming, digging out, clearing, burning or causing flooded forests and mangrove fires, etc.;
- Destroying, cutting down of inundated forests and mangrove forests or pulling trees out of the ground to collect wood;
- Commercial collection, transportation, and stocking of wood, firewood or charcoal of inundated and mangrove forest species; and
- Construction of kilns, handicraft places, processing places and all types of processing plants, which use raw wood of inundated and mangrove forest species.”

**The provisions for the *marketing policy* are found in Chapter 12 on “Transport and Trade of Fishery Products”. The provisions for the *inspection and enforcement policy* are found in Chapter 13 on “Licensing”; Chapter 14 on “Procedures for Solving Fishery Offences”; Chapter 15 on “Penalties”; and Chapter 16 on “Enforcement of the Court Judgment”. Many of the articles of the Fisheries Law will be elaborated further in specific Ministerial Decrees, Sub-decrees and Proclamations.**

### ***2.2.3 The stakeholders***

The stakeholders in fisheries policy-making at the national level in Cambodia are the political parties, the Council of Ministers, the MAFF’s Department of Fisheries (see Annex 2), and other government line agencies concerned with fisheries. The latter are involved in the policy-making process through

---

their representation in the National Fisheries Policy Committee. Other stakeholders are resource users, fish traders and transporters, fish processors and NGOs involved with fisheries development. The involvement of these stakeholder groups in the policy formulation very much depends on their formal organization at the national level.

#### ***2.2.4 The role of policy research***

The focus of policy research is on governance. Policy research identifies resources and habitat linkages, identifies stakeholder interests, clarifies options and trade-offs between policy objectives, clarifies management means, and assesses management outcomes. Specifically, the *structural policy research priorities* should include:

- An assessment of the policy reform impacts on small-scale operators' access to fish resources and on improvements in food security and livelihoods;
- An assessment of the economic and socio-economic impacts of the re-allocation of additional fishing lot areas for exploitation by Community Fisheries;
- An assessment of the impacts of establishing a single line of command within Cambodian fisheries authorities from the central level to the local level; and
- The capacity for participation in co-management in communities – and the modalities for developing the capacity.

*Conservation policy research priorities* should include the outcomes of various management instruments in terms of conservation. Specifically, there should be an assessment of:

- Potentials, costs and benefits of establishing conservation sites in existing fishing lot areas, deep pool areas and other critical habitats; and
- The functioning of fish sanctuaries and the benefits they provide.

The *marketing policy research priorities* should include:

- An assessment of the Cambodian fish export and of the relevance of establishing the institutional framework for the control of quality standards, etc. required for marketing fish products to major export markets;

- 
- An assessment of the impact of the Cambodian domestic transport taxation policy on fish and fish products; and
  - Linkages between food security in Cambodian households and other uses of fish products (e.g. export and feed).

The *inspection and enforcement policy research priorities* should include:

- User compliance with fisheries regulations; and
- Conflicts and conflict resolution in the fisheries domain.

## **2.3 The local level**

### **2.3.1 The issues**

At the local level, the main policy issues are how the fisheries-sector structure, natural resource conservation, fish marketing and enforcement described in Section 2.2 should be implemented in time and space in a national context. The Fishery Law establishes the overall guidelines for the implementation of these policies and more detailed guidelines are provided in decrees, sub-decrees and other regulatory documents. However, the guidelines provided in the Fisheries Law and the related legal documents are country-wide or applicable to larger geographical or ecological areas/habitats (e.g. marine coast and inland water bodies) and are not for specific sites or fishing communities.

For each of the 82 remaining fishing lots there is a “Burden Book” that provides details on the geographical site of that particular lot and how the lot area and the lot fisheries are to be managed by the lot concession holder in both time and space. This includes the rights and obligations of the concession holder as well as other stakeholders such as local rural dwellers living in or next to the fishing lot. The Burden Book leaves only limited room for policy-making at the local level, but plenty of room for decision-making by the concession holders and sub-lessees on operational matters on or related to fish production and selling. However, in reality the decision-making by the lot concession holders at the local level has very often gone far beyond the Burden Book stipulations. The power and influence on local chiefs of these mostly wealthy people has enabled them to make policy decisions on almost all aspects of the local fisheries, including decisions violating the Burden Book stipulations and requirements. This state of affairs

---

passed unchecked for a number of years and in the late 1990s was the major reason for the growing number of increasingly violent conflicts between different resource user groups at the local level.

The increase in the number of conflicts over access to inland fishing grounds, fish marketing, external (military) interference and lack of enforcement of legal provisions (e.g. Burden Book regulations, ban on destructive fishing gears, etc.) was the main reason for launching a major fisheries reform in 2000. At that time, 56 per cent of the total fishing lot areas were converted into areas for Community Fisheries.

The Government of Cambodia is at present considering whether additional fishing lot areas should be allocated to Community Fisheries. However, it is widely acknowledged that the lot system generates a resource rent that is (at least partly) captured by society through the semi-annual auctioning of the lot concessions. Moreover, the system also gives the concessionaires a strong (economic) incentive to maintain the productivity of the lot areas, i.e. to protect the fish habitats from destructive uses, such as cutting down trees in the flooded forests, or converting forest areas into rice fields. These issues need to be studied further as they have significant implications for social equity and sustainable management in the context of shifting institutional and legal paradigms on sustainable livelihoods, natural resources management, and habitat and environmental conservation.

### ***The fisheries policy reform***

“Community Fisheries” is a new structural concept in Cambodian fisheries policy that emerged in 2002 to provide small-scale fishers access to fishing grounds and, at the same time, to cater to the conservation of fish resources, fish marketing, and inspection and enforcement at the local level. Community Fisheries has established a system of fisheries co-management in Cambodia, through which government authorities facilitate the formation by local resource users of local-level (fishing community or village) Community Fisheries Committees and collaborate with these in managing the fisheries in clearly defined geographical areas (local fisheries domains).

As of 2005 some 400 Community Fisheries Organizations have been established throughout the country and it is highly likely that more fishing lot areas will be converted into Community Fisheries areas in the future.



---

However, without the Sub-decree on Community Fisheries Management, which only came into effect in June 2005, many of the Community Fisheries Organizations have not been properly implemented and lack by-laws, management plans and effective collaboration with local authorities on law enforcement, etc. Also, the capacity-building support from the Department of Fisheries and the Provincial Fisheries Offices has been limited and is far from sufficient to meet the challenges to effectively implement such Community Fisheries Organizations. This includes information for resource users on the objectives and intended functions of Community Fisheries Organizations, training of members of Community Fisheries Committees, provision of credit and other infrastructure facilities to re-structure/diversify fish production and related activities at the local level.

Research on Community Fisheries has shown positive impacts on the livelihoods of most, if not all, members of the local fishing communities involved. These impacts include the regulated access to local fishing grounds and fish resources, enforcement of rules and regulations, and the avoidance/resolution of conflicts between users and user groups at the local level. However, it is not clear as to what extent the inland fish resources in Cambodia will be able to sustain the possibly increasing fishing pressure from a growing number of rural dwellers in the future. For this reason, alternative livelihoods for both present and future generations have to be identified within the framework of Community Fisheries<sup>5</sup>.

Policy reform details including issues for policy research are to be found in both Kurien et al. (2006) and Hap et al. (2006).

Meanwhile, in the context of poverty reduction and equity, the fisheries policy reform has done much to spread the benefits of the fisheries sector across a much larger group of people. The previous fisheries management regime focused large benefits on only a few people. The reforms were designed to increase the number of people benefiting from the resources, very much in line with the country's Poverty Reduction Strategy (See below). However, as the open access nature of released fishing lots has allowed more people to enter the fishery and to use unsustainable and illegal fishing practices, the early benefits have come under greater stress. The benefit flows are now being spread over a far greater number of people than was originally envisaged by the reforms. This is happening so quickly that the legislative and institutional reforms have not

---

<sup>5</sup> For details on the impact analysis undertaken, please refer to the document entitled, PRIAC - Policy Reform Impact Assessment. (Cambodia Department of Fisheries, Community Fisheries Development Office, March 2004).

---

been able to keep pace. As a result, people are sometimes confused about what they can and cannot do under the current management regime. This has led to an expansion of illegal fishing gear use and conflicts between fishers are on the increase.

Cambodian fisheries have since 2002 moved from large benefit flows accruing to the few, to small benefits going to the many. A middle road giving a larger but sustainable flow of benefits to a moderate number of poor people should be found. This process needs to be linked much more closely with the wider development activities in the rural environment, especially the development of secondary and tertiary rural industries that will provide opportunities for those who are displaced from using the fisheries. As the Poverty Reduction Strategy<sup>6</sup> suggests, the future development of the fisheries must be tackled on four fronts, namely:

- Increasing alternative livelihoods in order to decrease exploitation of the fisheries;
- Strengthening the capacity of communities to manage their fisheries;
- Institutional capacity building to assist these processes; and
- Incorporating cross-sectoral approaches to enable fisheries to work in harmony with other sectors such as agriculture, forestry and water management.

***The administration and management of communes/sangkats reform***

In March 2001, the Government promulgated the Law for the Administration and Management of Communes/*Sangkats* and the Commune Election Law. In the following year, these laws allowed the creation of elected councils in Cambodia's 1,621 communes and *sangkats*.

In terms of natural resources management, the mandate of the Commune Councils is limited to the "protection and promotion of the environment". This, however, need not be a limiting factor because protection can be considered as the active management of what is already there and the promotion of contingency measures for what is not yet there or is no longer there (e.g. (re-)planting of flood forests). More significant are the items pointed out by Acker (2003) as follows:

- The absence of the legal basis for the Commune Council mandate in

---

<sup>6</sup> The National Strategic Development Plan, 2006-2010 was launched in February 2006 by the Royal Government of Cambodia.

---

the Fisheries Law. However, the role of the Community Councils is mentioned in the Sub-decree on Community Fisheries.

- The planning process in which natural resources management must be accommodated if it is to figure in the activities of the Commune Council. Planning conceived as a process to request input from the outside rarely contains development solutions that are not conditioned by external inputs and are not implemented and funded as public works. Moving away from a physical target focus is relevant in considering that natural resources management is very often not about “new” investments, but about “what is already there”; and
- The danger of subjecting natural resources management to the priorities and ambitions of political parties given that Commune Councils are constituted by popular elections via party lists.

While it is generally recognized that Commune Councils are likely to have a critical role in supporting fishing communities in resources management, the mechanisms by which this is liable to take place and the relationship among Community Fisheries Organizations, Provincial Fisheries Offices and local authorities are still unclear. At present, there is widespread concern among many fishers that there may be conflicts between the needs of the Community Fisheries Organizations and the role of Commune Councils in managing natural resources.

### ***2.3.2 The institutional framework***

The legal basis for establishing fishing lots in the domain of Cambodian fisheries and the allocation of lots to concession holders through a system of public auctioning appears in Chapter 7 of the Fisheries Law. The legal provisions, including the establishment of the lot Burden Books, are further specified in the Sub-decrees on fishing lot auctions and fishing lot management.

Meanwhile, the legal basis for establishing Community Fisheries Organizations is found in Chapter 11 of the Fisheries Law. Chapter 11 stipulates that all Cambodian citizens have the right to form a Community Fisheries Organization in their own areas and, on a voluntary basis, to take part in the sustainable management, conservation, development and use of the fisheries resources. The concept of Community Fisheries is defined and legalized in the Royal Decree on Community Fisheries of 29 May 2005 and is further specified in the Government Sub-decree on Community Fisheries Management.

---

Each local Community Fisheries Organization is required to establish its by-laws, elect (by the democratic process) a Community Fisheries Committee, and develop and implement an annually revised Community Fisheries Management Plan. The fulfilment of these requirements should reflect local conditions and fisheries management needs. The development and revision of the Community Fisheries Management Plans call for both scientific information and local knowledge on fish habitats and fish resources in the local domain and on the likely impacts of different fishing practices (and others) on the ecosystem and human livelihoods.

The Law for the Administration and Management of Communes/*Sangkats* and the Commune Election Law promulgated in 2001 stipulates that the primary focus of the communes is on their development, aside from serving as agents of the Cambodian Government. Specifically, under the new mandate the Communes are expected to do the following activities:

- Maintain order and security;
- Offer public services that protect citizens' health and well-being;
- Promote and plan for economic and social development;
- Upgrade citizens' living standards;
- Protect cultural and environmental resources;
- Promote tolerance and mutual understanding; and
- Respond to the needs of the people.

The role of the Commune Councils in local planning is anchored in the Five-Year Development Plan, the Three-Year Rolling Investment Plan and the Annual Plan. Proposals are coordinated at the district and provincial levels through a Coordination Workshop where the communes, line agencies and civil society members meet to fine-tune the plans. The Commune Council is directly responsible to its electorate for its performance and indirectly accountable to the State for the legality of its actions.

### ***2.3.3 The stakeholders***

The stakeholders include representatives of the following groups:

1. Resource users (fishers, lot owners);
2. People in the fish processing and distribution chain;
3. Community Fisheries Organizations;
4. National/provincial/district line agencies (various sector interests);

5. Commune Councils;
6. Political parties at the local level;
7. Consumers;
8. Trade unions (if any);
9. NGOs (civil society organizations other than the Community Fisheries Organizations); and
10. Donor agencies.

*In the local lot fishery*, the stakeholders are the concession holders and possible sub-lessees, the Government through the Department of Fisheries, the province through the Provincial Fisheries Office, the police, the Commune Council, the fishing lot employees, the Community Fisheries Organization(s) bordering the fishing lot, and the local small-scale fishers exploiting the lot resources during the open season. Each of these groups has a different stake ranging from rent collection to law enforcement, income generation, habitat protection, and/or subsistence/livelihood. The annual Coordination Workshop is the only forum where these stakeholders meet and discuss their conflicting interests in the context of drawing up the Commune Plan.

*In Community Fisheries*, the stakeholders are the members of the Community Fisheries Organization, the Government through the Department of Fisheries (more specifically, the Community Fisheries Development Office), the Provincial Fisheries Office (i.e. the Community Fisheries Development Unit), the police and commune/village authorities. Other important stakeholders are the Commune Councils, the NGOs concerned and the donor agencies supporting the development of Community Fisheries. The Inland Fisheries Research and Development Institute (IFReDI) that supplies scientific information on biological and socio-economic aspects of the Cambodian inland fisheries should also be considered a stakeholder.

Fora exist in Community Fisheries where stakeholders come together with a mutual interest in resolving possible conflicts and collaborating on the fulfilment of the objectives of Community Fisheries Organizations.

### ***2.3.4 The role of policy research***

*The structural policy research priorities include the following:*

- Natural resources management at the local level (governance issues);
- Assessment of the impact that the local fishing lot and Community Fisheries have on small-scale operators' access to the fish resources and the increase in food security and livelihoods at the local level; and
- The local capacity for participation in Community Fisheries – and the modalities for developing the capacity.

*The conservation policy research priorities include certain activities such as:*

- Identification/monitoring of local fish habitats and their carrying capacity;
- Assessment of management instruments applied locally for conservation purposes such as fish sanctuaries, fishing gear restrictions, closed seasons, fish stocking, etc.; and
- Assessment of the potentials, costs and benefits of establishing conservation zones/sites in specific areas (e.g. deep pools and/or other critical habitats).

*The marketing policy research priorities include the following:*

- Local fish trade and marketing systems;
- Local fish price formation;
- Local trade barriers; and
- The options for developing alternative aquatic products at the local level.

*The inspection and enforcement policy research priorities focus on:*

- Compliance with local Community Fisheries regulations; and
- Conflicts and conflict resolution in the local domain of Community Fisheries.

In the next few years, policy and institutional environments in Cambodia are expected to be very dynamic. They will be influenced on the one hand by the specialized nature of developments in the fishery sub-sectors, such as aquaculture, and on the other hand, by global trends in decentralization and devolution of institutional governance, as well as trade and market-related global phenomenon (e.g. food safety and quality). Hence, policy research would need to respond to the changing structure of institutions and markets at all levels

In summary, there are at least four policy research areas that look at priorities at the international, national and local levels/scales. *International scale policy research* focuses on the relevance of international treaties, etc., in supporting national sector goals and on establishing appropriate institutional frameworks for the implementation of such treaties. This would include legal and organizational aspects at various administrative levels, issues related to enforcement and monitoring as well as impact assessment. The type of research to be undertaken to support policy development, measures, and implementation would, therefore, relate to the following set of activities:

- Identification of transboundary fish resources and habitat linkages;
- Identification of societal benefits from transboundary fish resources and habitat management;
- Clarification of options and trade-offs for regional fisheries policy objectives;
- Strengthening of institutions and identification of suitable means for regional fisheries management; and
- Monitoring and reporting on outcomes of regional fisheries management, and disseminating information to the scientific community, policy-makers and administrators, resource users, and the general public throughout the Lower Mekong Basin.

Meanwhile, *national scale policy research* is expected to identify national stakeholder interests, clarify trade-offs between various policy objectives, clarify management means and options, and assess management impacts. *Policy research on the local scale* focuses on identifying local stakeholder interests, trade-offs between management options, means of (technical and institutional) management and outcomes of local-level management (in terms

---

of resource sustainability, equity, and efficiency). National and local research concentrates on governance, structural policy, conservation policy, marketing policy, and inspection and enforcement policy (Table 1). The research also includes monitoring and reporting on the outcomes of fisheries management and disseminating information to the scientific community, policy-makers and administrators, resource users, sector stakeholders, and the general public in Cambodia.



# 4

## References

- Acker, F.V. 2003. Natural resource management and decentralization. Final Report, EU PRASAC II Support Programme for the Agricultural Sector in Cambodia. (Missing the publisher, city, etc.)
- Baran, E. 2005. Cambodian inland fisheries: facts, figures and context. Final Draft. The WorldFish Center, Penang, Malaysia.
- Bartley, D., D. Coates and R. Subasinghe. 1996. Framework for the responsible use of introduced species. Report of the symposium held in connection with the European Inland Fisheries Advisory Commission Nineteenth Session, Dublin, Ireland, 11-19 June 1996, and reports of the Inter-sessional Working Parties Meetings. FAO Fisheries Report No. 541, Suppl. 1. Food and Agriculture Organization, Rome, Italy. 138 p.
- Bernauer, T. 1997. Managing international rivers, p. 155-195. *In* O. Young (ed.) Global governance: drawing insights from the environmental experience. The MIT Press, Cambridge, Massachusetts, U.S.A.
- Cambodia Department of Fisheries. 2004. PRIAC - Policy Reform Impact Assessment. Department of Fisheries, Community Fisheries Development Office, Phnom Penh, Cambodia.
- Chamnan, C., B. Roitana and L. Sopha. 2005. A review of the current fisheries status and its contribution to food and nutrition security in Cambodia. Draft Report. Inland Fisheries Research and Development Institute (IFReDI). 41 p.
- CFDO-IMM. 2005. Cambodia post-harvest fisheries overview. An output from the DFID-funded Post-Harvest Fisheries Livelihood Project. Department of Fisheries, Phnom Penh, Cambodia.
- Coates, D. 1998. Codes of practice for the stocking and introduction of fish, (Chapter 32), p. 383-396. *In* I. G. Cowx (ed.) Stocking and introduction of fish. Fishing News Books, Osney Mead, Oxford, U.K. 456 p.
- Coates, D., A. Poulsen and S. Viravong. 2000. Governance and transboundary fish stocks in the Mekong River Basin. A paper presented at the MRC Fisheries Programme Technical Symposium 1999. The MRC Fisheries Programme, Assessment of Mekong Fisheries Component (AMFC), Vientiane, Lao P.D.R. 22 p.
- Convention on Biological Diversity (CBD). 1992 <http://www.biodiv.org/convention>
- Food and Agriculture Organization (FAO). 1997. Inland fisheries. FAO technical guidelines for responsible fisheries, No. 6. Food and Agriculture Organization, Rome, Italy. 36 p.
- Food and Agriculture Organization (FAO). 1995. Code of conduct for responsible fisheries. Food and Agriculture Organization, Rome, Italy. 41 p.
- Food and Agriculture Organization (FAO). 1993. Report of the expert consultation on utilisation and conservation of aquatic genetic resources, Grottaferrata, Italy, 9-13 November 1992. FAO Fisheries Report 491. Food and Agriculture Organization, Rome, Italy. 58 p.
- Gill, I. 1996. Mekong: dismantling the barriers. ADB Review July-August 1996:3-8.
- Government of Cambodia. 2006. National strategy development plan, 2006-2010. Government of Cambodia, Phnom Penh, Cambodia.
- Government of Cambodia. 2005. Royal decree on the establishment of community fisheries. Government of Cambodia, Phnom Penh, Cambodia.

- Government of Cambodia. 2005. Sub-decree on community fisheries management. Government of Cambodia, Phnom Penh, Cambodia.
- Hap, N., L. Seng and R. Chuenpadgee. 2006. Socioeconomics and livelihood values of Tonle Sap Lake Fisheries. Inland Fisheries Research and Development Institute (IFReDI), Phnom Penh, Cambodia. 24 p.
- Hoggarth, D. D., V. J. Cowan, A. S. Halls, M. Aeron-Thomas, J. A. McGregor, C. A. Garaway, A. I. Payne and R. L. Welcomme. 1999. Management guidelines for Asian floodplain river fisheries. Part 1: A spatial, hierarchical and integrated strategy for adaptive co-management. FAO Fisheries Technical Paper 384/1. Food and Agriculture Organization, Rome, Italy. 63 p.
- Hortle, K.G., S. Lieng and J. Valbo-Jorgensen. 2004. An introduction to Cambodia's inland fisheries. Mekong Development Series No. 4. Mekong River Commission, Phnom Penh, Cambodia. 41 p. ISSN 1680-4023.
- Jentoft, S. and B. J. McCay. 2003. The place of civil society in fisheries management: a research agenda for fisheries co-management, p 293-398. *In* D. C. Wilson, J. Raakjær Nielsen and P. Degnbol (eds.) The fisheries co-management experience: accomplishments, challenges and prospects. Kluwer Academic Publishers, Dordrecht, The Netherlands.
- Kurien, J., N. So and S. O. Mao. 2006. Cambodia's aquarian reforms: the emerging challenges for policy and research. Inland Fisheries Research and Development Institute, Phnom Penh, Cambodia. 32 p.
- McAdam, L. and L. N. Binh. 1996. Vietnam's deltas: environmental aspects and investment implications, p. 76-82. *In* B. Stensholt (ed.) Development dilemmas in the Mekong sub-region. Proceedings of a workshop held 1-2 October 1996 in Clayton, Australia. Monash Asia Institute, Monash University, Monash, Australia.
- Ministry of Agriculture, Forestry and Fisheries (MAFF), Department of Fisheries. 2004. Fisheries development action plan, 2005-2008. Version 3, 18 November 2004. Department of Fisheries, Phnom Penh, Cambodia. 12 p.
- Ministry of Agriculture, Forestry and Fisheries (MAFF), Department of Fisheries. 2004. Fisheries law and decrees. (Draft, 29 March 2004). (Unofficial translation supported by the ADB/FAO TA Project on Improving the Regulatory and Management Framework for Inland Fisheries). Department of Fisheries, Phnom Penh, Cambodia.
- Mekong River Commission (MRC). 2004. Agreement on the cooperation for the sustainable development of the Mekong River Basin, 5 April 1995. Mekong River Commission Secretariat, Vientiane, Lao P.D.R. 19 p.
- Mekong River Commission (MRC). 1998. Mekong River Commission strategic plan, 1999 to 2003. Mekong River Commission Secretariat, Phnom Pen, Cambodia. MKG/R.98027.
- Motos, L. and D. C. Wilson. 2006. The knowledge base for fisheries management. Elsevier, The Netherlands.
- Polanyi, K. 1944. The great transformation. Beacon Press, London, U.K.
- Poulsen, A. F. and J. Varbo-Jorgensen. 2000. Fish migrations and spawning habits in the Mekong

---

mainstream - a survey using local knowledge. Internal Report. AMFC Technical Report. The MRC Fisheries Programme, Assessment of Mekong Fisheries Component (AMFC), Vientiane, Lao P.D.R..

- Quang, N. N. 1996. The Mekong basin development: Vietnam's concerns, p. 120-124. *In* B. Stensholt (ed.) Development dilemmas in the Mekong sub-region. Proceedings of a workshop held 1-2 October 1996 in Clayton, Australia, Monash Asia Institute, Monash University, Monash, Australia.
- Scott, R. 1995. Institutions and organizations. Sage Publications, Thousand Oaks, California, U.S.A.
- Seng, K., S. L. Song, H. Navy and S. Leang. 2004. An examination on the re-allocation of fishing lots – perception from community fisheries in Cambodia. Inland Fisheries Research and Development Institute (IFReDI), Phnom Penh, Cambodia. 76 p.
- Sina, L. 2003. Cambodia fisheries conflicts in the post-war era and the creation of fishing communities: a case of fishing lot conflicts around Tonle Sap River and the Great Lake. *Journal of Regional Fisheries* 2003 (2):89-106.
- Sverdrup-Jensen, S. 2002. Fisheries in the Lower Mekong Basin: status and perspectives. MRC Technical Paper No. 6. Mekong River Commission, Phnom Penh, Cambodia. 1003 p. ISSN: 1683-1489.
- Tana, T. S. and B. H. Todd. 2003. The inland and marine fisheries trade of Cambodia. Oxfam America, Phnom Penh, Cambodia. 147 p.
- Thuok, N., S. Nam and T. Sensereyath. 2001. Cambodia's fish processing and marketing and distribution of fish and fishery products, focusing on marketing opportunities and export potentials. Paper presented at the conference on export potentials for Cambodian fishery products in the international market, Phnom Penh, 6 February 2001. Department of Fisheries, Phnom Penh, Cambodia. 15 p.
- Vuthy, L. 2004. Cambodia inland fisheries management and the institutional change in fisheries. Paper prepared for the WFC/DFID consultative workshop in Dhaka, Bangladesh, 6-7 October 2004. Department of Fisheries, Phnom Penh, Cambodia. 10 p.
- Walzer, M. 1995. The idea of a civil society. *In* M. Walzer (ed.) *Toward a global civil society*. Berhaham Books, Providence, Rhode Island, U.S.A.
- Weber, M. 1978. *Economy and society*. University of California Press, Berkeley, California, U.S.A.
- Wilson, D. C. 2003. Conflict and scale: a defence of community approaches in fisheries management, p. 193-211. *In* D. C. Wilson, J. Raakjær Nielsen and P. Degnbol (eds.) *The fisheries co-management experience: accomplishments, challenges and prospects*. Kluwer Academic Publishers, Dordrecht, The Netherlands.
- Young, O. 1989. *International co-operation: building regimes for natural resources management and the environment*. Cornell University Press, Ithaca, U.S.A.

**Table 1. The role of policy research – a summary of priorities**

Policy Research Area	Level / Scale	
	National	Local
Structural	<ul style="list-style-type: none"> <li>Assessment of policy reform impacts on small-scale operator access to fish resources and increase in food security and improved livelihoods</li> <li>Assessment of economic and socio-economic impacts on the re-allocation of additional fishing lot areas for the exploitation by Community Fisheries</li> <li>Assessment of impacts on establishing a single line of command within Cambodian fisheries authorities from the central level to the local level</li> <li>Capacity for community participation in fisheries co-management and modalities for developing the capacity</li> </ul>	<ul style="list-style-type: none"> <li>Natural resources management at the local level (governance issues)</li> <li>Assessment of local fishing lots and impacts of Community Fisheries on small-scale operator access to fish resources and increase in local-level food security and livelihoods</li> <li>Local capacity for participation in Community Fisheries – and modalities for developing the capacity</li> </ul>
Conservation	<p>Outcomes of various management instruments in terms of conservation, specifically the assessment of:</p> <ul style="list-style-type: none"> <li>Potentials, costs and benefits of establishing conservation sites in existing fishing lot areas, deep pool areas and other critical habitats</li> <li>Functioning of fish sanctuaries and the benefits they provide</li> </ul>	<ul style="list-style-type: none"> <li>Identification/monitoring of local fish habitats and their carrying capacity</li> <li>Assessment of management instruments applied locally for conservation purposes such as fish sanctuaries, fishing gear restrictions, closed seasons, fish stocking, etc.</li> <li>Assessment of the potentials, costs and benefits of establishing conservation zones/sites in specific areas (e.g. deep pools and/or other critical habitats)</li> </ul>
Marketing	<ul style="list-style-type: none"> <li>Fish trade and marketing systems in Cambodia</li> <li>Cambodian fish export (markets and distribution channels)</li> <li>Fish price formation (sources and character of demand and supply)</li> <li>Options for developing new products and markets for locally-produced fish</li> <li>Barriers in domestic fish trade and fish exports</li> <li>Relevance of establishing an institutional framework for the control of quality standards for export of fish products to important export markets</li> <li>Linkages between food security in Cambodian households and other uses of fish products (export and fish feed)</li> </ul>	<ul style="list-style-type: none"> <li>Local fish trade and marketing systems</li> <li>Local fish price formation</li> <li>Options for the development of alternative aquatic products at the local level</li> <li>Barriers to fish trade at the local level</li> </ul>
Inspection and enforcement	<ul style="list-style-type: none"> <li>User compliance with fisheries regulations</li> <li>Conflict analysis and conflict resolution in the fisheries domain</li> </ul>	<ul style="list-style-type: none"> <li>Compliance with local Community Fisheries regulations</li> <li>Conflict analysis and conflict resolution in the domain of local Community Fisheries</li> </ul>

## Annex 1: List of currently known transboundary species and stocks in the Mekong River Basin

This list is provided as an example of a template for the identification of transboundary issues. It is not exhaustive and the status of the various stocks is subject to further confirmation. In interactions with managers and stakeholders, scientific names should be supplemented with names in local languages. This list is presented only as an example.

Taxon	Species	Stock #	Countries						Comments
			Vietnam	Cambodia	Lao PDR	Thailand	Myanmar	China	
<b>Mammal</b>	(freshwater dolphin)			X	X				
<b>Crustacean</b>	<i>Macrobrachium rosenbergi</i>	?	X	X	?	?	?	?	
<b>Fish</b>	<i>Aptosyax grypus</i>	?	?	X	X	X			Very rare, little documented
	<i>Bangana behri</i>	?	?	X	X	X			Juveniles may enter Vietnam
	<i>Catlocarpio siamensis</i>	1	X	X	?	?	?	?	
		2	?	?	X	X	?	?	May be several stocks
		3			X	X	?	?	
	<i>Cirrhinus microlepis</i>	1	X	X	X	X			
		2		?	X	X	?	?	May be several stocks
		3			X	X	?	?	
	<i>Cyclocheilichthys enoplos</i>	1	X	X	X	?			
		2		?	X	X	?	?	May be several stocks
		3			X	X	?	?	
	<i>Henichorynchus lobatus</i>	1	X	X	X	?			May be several stocks
	<i>Henichorynchus siamensis</i>	1	X	X	X	?			
		2		?	X	X			May be several stocks
		3			X	X	?	?	
	<i>Mekongina erythrospila</i>	1		X	X	X			
		2			X	X	?	?	May be a distinct species
	<i>Morulius chrysophekadion</i>	1	X	X	?	?			
		2		?	X	X			May be several stocks
		3			X	X	?	?	

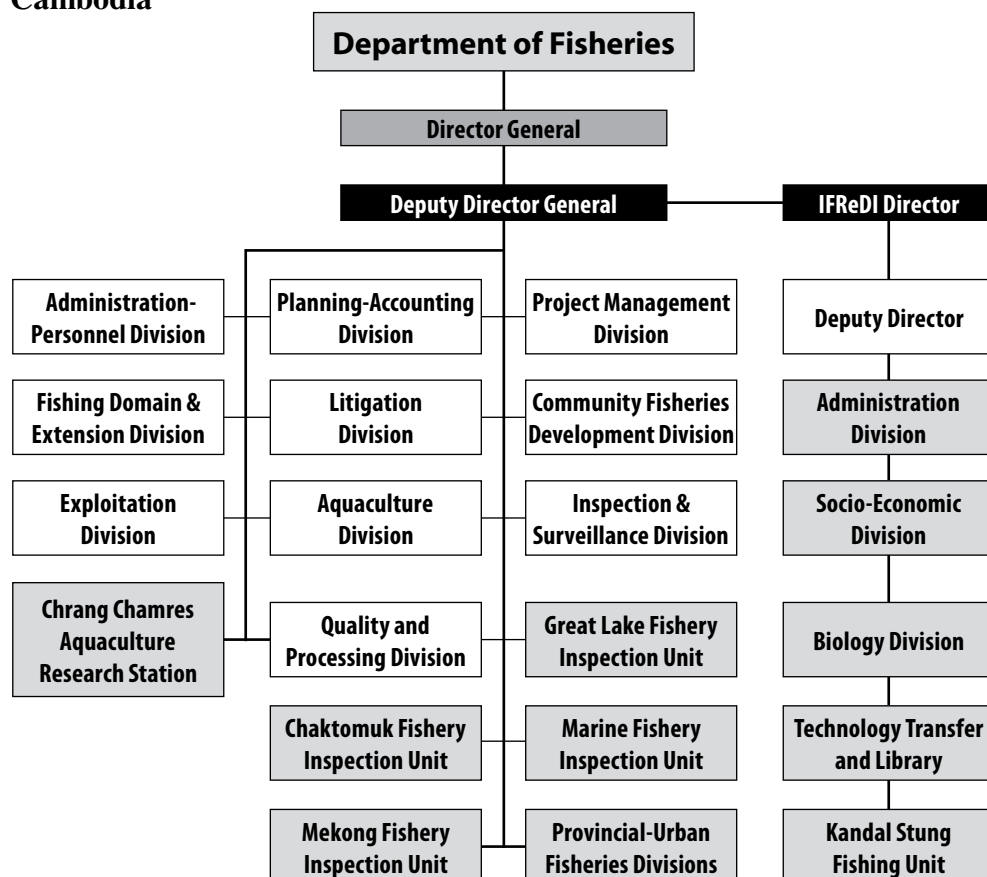
Annex 1 continued.

Taxon	Species	Stock #	Countries					Comments	
			Vietnam	Cambodia	Lao PDR	Thailand	Myanmar		China
	<i>Paralaubuca typus</i>	1	X	X	X	?			
		2		?	X	X	?	?	May be several stocks
		3			X	X	?	?	
	<i>Probarbus jullieni</i>	1	X	X	X	?			
		2		?	X	X	?	?	May be several stocks
	<i>Probarbus labeamajor</i>	1	X	X	X	?			
		2		?	X	X	?	?	May be several stocks
	<i>Probarbus labeaminor</i>	?	?	?	X	X	?	?	Rare, little known
	<i>Pantioplites falcifer</i>	1	X	X	X				
		2			X	X	?	?	May be several stocks
	<i>Thynnichthys thynnoides</i>	1	X	X	X	?			
		2		?	?	?	?	?	May be several stocks
	<i>Tenualosa thibeaudeau</i>	1	?	X	X	?			
		2		?	X	X	?	?	
	<i>Botia modesta</i>	1	X	X	X	?			
		2		?	X	X	?	?	May be several stocks
	<i>Heligophagus waandersii</i>	1	?	X	X	?			
		2		?	X	X	?	?	May be several stocks
	<i>Pangasianodon gigas</i>	1	X	X	?	?	?	?	May be same as stock #2
		2	?	?	X	X	?	?	May be same as stock #1
	<i>Pangasianodon hypophthalmus</i>	1	X	X	X	?			
		2		?	X	X	?	?	
	<i>Pangasius bocourti</i>	1	X	X	X	?			
	<i>Pangasius conchophilus</i>	1	X	X	X	?			
		2		?	X	X	?	?	May be several stocks
	<i>Pangasius djambal</i>	1		X	?	?			
		2		?	X	X	?	?	May be several stocks
	<i>Pangasius krempfi</i>	1	X	X	X	?			May be same as stock #1?
		2		?	X	X	?	?	May be same as stock #2?

**Annex 1 continued.**

Taxon	Species	Stock #	Countries						Comments
			Vietnam	Cambodia	Lao PDR	Thailand	Myanmar	China	
	Pangasius larnaudiei	1	X	X	X	?			
		2		?	X	X	?	?	May be several stocks
		3			X	X	?	?	Rare
	Pangasius macronema	1	?	X	X	?			
		2		?	X	X	?	?	May be several stocks
	Pangasius pleurotaenia	1	?	X	X	?			
		2		?	X	X	?	?	May be several stocks
		3			X	X	?	?	May be several stocks
	Pangasius polyuranodon	1	?	X	X	?			
		2		?	X	X	?	?	May be several stocks
	Pangasius sanitwongsei	1		?	X	X	?	?	May be more than one stock
	Bagarius yarelli	1		?	X	X	?	?	May be several stocks

**Annex 2. Organizational chart of the Department of Fisheries, Cambodia**



**Structure of IFRaDI**

