

FINAL REPORT

**INCORPORATING COMMON POOL RESOURCE
(CPR) ISSUES INTO FISHERIES MANAGEMENT
IN DEVELOPING COUNTRIES:**

KEY LESSONS AND BEST PRACTICE



**A report for the
DFID/MRAG Fisheries Management
Science Programme**

**Project No. R8467 'Incorporating Common Pool
Resource (CPR) Issues into Fisheries Management'**

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ABSTRACT

In the following report, the empirical findings of 18 projects undertaken within the DFID/MRAG Fisheries Management Science Programme (FMSP) are reviewed with reference to the wider framework provided by current theory and management practice on Common Pool Resources (CPR). There are three main sections: First, the main theoretical and empirical themes in the CPR study domain are outlined. Second, the key empirical findings from the FMSP projects are presented in relation to current knowledge on CPR. Third, the major issues and themes are then synthesised and summarised. The review concludes by discussing the significance of the overall findings to best practice and future research in the area of CPR (fisheries) management. The information derived from the review will be used by the current project as a basis for the future development of a series of four key sheets ('Incorporating CPR issues into fisheries management in developing countries: key issues and best practice') for distribution to international and national policy-makers and their advisers.

KEYWORDS:

Common Pool Resources (CPR); Fisheries Management; Review Study; Developing Countries; DFID Research;

DISCLAIMER

The authors of this report are solely responsible for its content, and any views or opinions expressed may not necessarily represent those of the sponsor, the UK Department for International Development (DFID).

LINKS

Other current projects within the Fisheries Management Science Programme can be located at the following website address: <http://www.fmsp.org>

Front cover photograph:

Coastal fisheries in Mauritania, West Africa (S. Cunningham, 2005)

ACRONYMS AND ABBREVIATIONS

BMC	Beach Management Committee
BMU	Beach Management Unit
CMT	Customary Marine Tenure
CPR	Common Pool Resources
EEZ	Exclusive Economic Zone
FAD	Fish Aggregating Device
FAO	United Nations Food and Agriculture Organisation
FMSP	Fisheries Management Science Programme
FTR	Final Technical Report
GDP	Gross Domestic Product
IAD	Institutional Analysis and Development Framework
KS	Key Sheets
LAR	Living Aquatic Resources
LRUG	Local Resource User Group
MPA	Marine Protected Area
NGO	Non-Government Organisation
NRM	Natural Resource Management
NRSP	Natural Resource Systems Programme
PIP	Policy, Institutions and Processes
SOFIA	State of Fisheries and Aquaculture (FAO Report)
SRS	Self-Recruiting Species

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1. INTRODUCTION AND BACKGROUND

The international empirical and theoretical literature on common pool resources (CPR) is very extensive but there remains a need to draw out themes and useful lessons learned from the range of research and empirical observations.

The Fisheries Management Science Programme (FMSP) has operated for the past eleven years. Research is organised around 5 product themes made up of 11 project clusters. Within these clusters are projects which either produced similar types of product, or have built on previous research in order to further develop a product and to realise developmental impact. Clusters 2 (livelihoods analysis) and 7 (generic management guidelines) are the focus of this review.

In the case of fisheries, the FMSP has contributed much new technical knowledge and these research outputs should contribute to the management and development of capture and enhancement fisheries for the poor in future. However, the factors that appear to influence management outcomes need to be compared and analysed in order to identify potential lesson-learning or best-practice. This review will assess and represent the empirical observations relating to CPR issues by highlighting key issues and positioning the research within the wider framework of current CPR theory and management practice.

The review is comprised of three sections, as follows:

First, the key elements of CPR are outlined with respect to theory, current knowledge and to their potential contribution to development and poverty reduction. The role of fisheries in development is highlighted.

Second, key empirical findings from the FMSP Cluster 2 (*Livelihoods appraisals*) and Cluster 7 (*Generic management guidelines*) projects are presented and discussed in relation to this current knowledge.

Third, the important themes and issues are synthesised and summarised. The review concludes by discussing the significance of these messages with respect to best practice and future research.

The review will form the basis for four keysheets to be developed during the course of the current project, as follows:

- *The Importance of CPR (fisheries) to the Poor in the Developing Countries;*
- *Factors which affect CPR (fisheries) Management Performance in Developing Countries: Key lessons;*
- *Approaches for Improving CPR (fisheries) Management Performance in Developing Countries: Best Practice;*
- *Future Research Priorities for CPR (fisheries) Management in Developing Countries.*

2. Common Pool Resources – issues and themes

2.1. Introduction

It is widely acknowledged that renewable natural resources directly or indirectly provide livelihoods to millions of poor people in the developing world and that this function is threatened by environmental degradation, over-exploitation and alternative uses. In addition, as common pool resources (CPR), there are several features of systems such as forests, rangelands, fisheries and water that make their management problematic.

2.2. The theoretical and research background

The CPR research and literature draws from both the theoretical background set by Ostrom and others and from empirical research and descriptive case study material. By setting out the fundamental, problematic, characters of CPR, and linking this to cases studies Ostrom has been influential in stimulating the debate on suitable management requirements for CPR. Drawing from Ostrom (1990), Hess (2002) defines CPR as:

*“...both natural (fish, trees etc) and human-made (libraries, internet, irrigation systems etc) with features such as one person’s use subtracts from another’s use (subtractability) and where, in contrast with public goods, it is often necessary, but difficult and costly, to exclude other potential users outside this group from using the resource (excludability)”*¹

In other words, exploitation of the CPR by one user reduces availability to others while the exclusion of resource users by physical or institutional means is problematic. The Ostrom school has also contributed to the discussion of alternative CPR management regimes based on different types of property rights (open access, group property, private and state ownership) and to propose starting conditions or requirements for effective management (Box 1).

Box 1. Ostrom’s Design Principles for robust CPR management (Ostrom, 1990)

Clearly defined boundaries – delimiting the resource & recognising those entitled to its use.

Site specific appropriation rules – rules for allowable resource use should be tailored to the local context & may not be suitable for replication nationally.

Active participation – Those interacting with the CPR should have some role in modifying rules of operation, appropriation & sanction.

Effective monitoring – Some form of feedback on performance is required & should be conducted by appropriators or by stakeholders accountable to them.

Graduated sanctions – penalties graded in relation to the severity & impact of the violation. Ideally, benefits derived from fees are internalised & received by appropriators.

Conflict resolution – CPR institutions should possess a form of conflict resolution mechanism.

A degree of autonomy – External or national modes of NRM should complement rather than challenge local-level rules & institutions.

Nested organisation – Smaller scale institutions or authorities are embedded within larger, overseeing structures. The system as a whole is layered & hierarchical.

¹ The term ‘common pool resource’ distinguishes between the resource and the property rights regime under which it is held. This contrasts with the term “common *property* resource”. Common property resources are resources to which particular property rights are attached and are held in common by a defined group on whom the rights are bestowed (Ostrom *et al*, 1999).

A key impact of the CPR theory has been to suggest that appropriate institutions are not only an historic product of traditional society, but that new management systems and “rules” for use can actually be crafted and implemented².

Subsequent work on the management of forests, rangelands and fisheries in the developing world has sought to identify suitable bundles of use rights and rules for effective and equitable management. The early research emphasis had been to attempt to learn from traditional customary forms of management and to consider applying these principles in new community-based management. In the 1980s attention turned to the prospects of state-supported natural resource management (NRM) as co-management, first in the agriculture sector and finally in the fisheries sector.

In addition to the special characteristics of CPR that make their management problematic there are other sets of constraints to implementing effective CPR management in the developing world. These can be broadly termed “institutional” and relate to governance. With respect to the state, national policy and legal frameworks are often either lacking or ineffective and struggle to implement change. At the local level, there are often pre-existing interests that attempt to subvert or destroy new forms of management with a pro-poor agenda.

Given this setting, CPR research-based initiatives have ultimately had difficulty achieving change. Much of the CPR-related research and programmes have attempted to use a participatory process to help design suitable structures and rules at the local level but there are few examples of locale-specific successes scaled-up or transferred elsewhere.

Recent analysis of CPR has moved towards legal, policy and institutional aspects of their management (see Neiland and Bennett, 2003). With respect to legal frameworks, for instance, there is a recognition that greater knowledge is required of the process by which the state can grant and protect rights (to individuals, groups etc.) or incorporate pre-existing informal access arrangements. In addition, legal frameworks must find mechanisms to identify the suitable recipients of these rights.

There is wide spectrum of legal instruments and policies that attempt regulation of, or impinge on, CPR. Although the state has normally attempted to override local management arrangements and rules relating to CPR there have been recent attempts by some governments to incorporate a participatory element in policy and the development of new law. This change has emanated from a combination of a new recognition of the cross-sectoral character of CPR and a new political emphasis on local democracy and rights. The move from a centralised and proscribed approach to natural resource management brings with it its own sets of issues and complexity such as how rights are distributed, how they are enforced and secured and how extant legal frameworks are able to accommodate these demands (Box. 2).

Box. 2. How do legal frameworks deal with:

- **Nature and Scope of Rights:** what are people empowered to do?
- **Security of Rights:** to what extent can people count on their rights being respected, protected and exercisable?
- **Identity of the Rights Holders:** in whom are rights and responsibilities vested? Who belongs to a community? How are relationships within a community and with outsiders mediated?

Source: “Key findings a workshop, Portsmouth, 19th March, 2003; Neiland & Bennett, 2003 (Organised by IDDRA Ltd. on behalf of DFID.)

However, the role of policy and legal frameworks in CPR management must not be overestimated in the development context because a large array of factors (social, political and institutional) function to influence management outcomes. In this regard, the institutional environment in which CPR management operates is receiving greater attention. If institutions are taken to represent “*regularised patterns of behaviour between individuals and groups in society*” (Leach *et al*, 1999), from informal institutions of norms and processes through to formal institutions of constitutions and legal frameworks, then it can be seen that these factors operate at all levels, accounting for the character of governance and the problem of rent-seeking, for instance, as much as they do to traditional rights of access or exclusion of groups at the local level.

As with all potential forms of CPR management, then, discussion of legal and political frameworks and options must be framed in relation to the way in which beneficiaries and other interests interact with formal structures and the potential *de facto* outcomes.

2.3. CPR and fisheries in the context of development

CPR provide economic goods and services, globally, but in the development context they may have a primary function for much of society. Where CPR (or access to them) are threatened there can be serious social consequences that impact national development and even security, highlighted recently by the legacy of land-use conflict in Darfur, for instance.

Fisheries play a key role to the national economies of many countries and the contribution of the sector is documented to some extent ('value' estimates vary by country). According to FAO (2004) the total world catch of over 100 million tonnes in 2002 represented \$80 billion at first sale. The contribution of these catches to the national economies of some of the poorest countries is considerable with approximately 70% of this total catch produced in the developing world.

Fisheries represent a vital contribution to national food security in many vulnerable states, providing the major source of animal protein for about one billion people worldwide. With respect to employment, 36 million (95%) of the world's fishers are based in the developing world, relying on full-time or part-time employment directly from fisheries. In addition, capture and enhancement fisheries support considerable associated employment in the processing, gear production, marketing and export sectors, helping to underpin the livelihoods of over 100 million people worldwide.

Fisheries contribute to both trade and domestic markets and provide a key source of food for many poor. Total trade in fish and fish products is estimated to be worth over US\$58 billion (far higher than other food products including coffee, tea, rice and cocoa) (FAO, 2004). A majority of the traded fish originates in Developing Countries, destined for markets in Developed Countries. For example, in Bangladesh, the sector accounts for 11% of export earnings and 4% of GDP. It is estimated that about 11% of the population depend solely on the fishery for their livelihoods, while 73% depend on part-time fishing at certain times of the year. In addition, it is estimated that fish comprises up to 80% of animal protein (Anon, 1998).

3. The Research under FMSP Clusters 2 and 7

3.1. Introduction

In this section, the common themes with respect to the coverage and setting of the research (past/present management constraints and problems etc.) are discussed but the main focus is on the new knowledge derived by the projects that may inform future policy and approaches to fisheries management.

The research projects that do, in fact, discuss existing and potential management structures for CPR, cover a wide range of issues between them, including suggestions for policy, legal framework and local rules of use.

In this respect most projects jointly focus on those issues that can be considered institutional.

3.2. The Projects

The DFID Renewable Natural Resources Research Strategy ended in March 2005 but FMSP, in line with the other Programmes, has entered into a year-long phase of knowledge management and uptake promotion activities. The FMSP strategy and latest log-frame emphasise the following Output:

“the contribution of *capture* and *enhancement* fisheries to the livelihoods of the poor; fisheries management tools and strategies that could benefit the poor; and, the means to realise improved management, further developed, disseminated and promoted to relevant stakeholders at all levels”

As such, this current project represents an effort to contribute towards this output by re-examining the FMSP research on capture (and to an extent enhancement) fisheries, and within the context of CPR management in general, the aim has been to identify, highlight and compare the approaches and tools, and to disseminated the summary information in an appropriate form to policy-makers and their advisers, both nationally and internationally.

The review prioritises Cluster 2 (*Livelihoods appraisals*) and Cluster 7 (*Generic management guidelines*) which correspond to the Programme product themes “*Information to inform management-research and influence policy*” and “*Pro-poor capture fisheries management strategies*”, respectively.

Due to the characteristics of capture fisheries, the FMSP has attempted to coordinate projects that might be termed *enabling*. In this respect, the projects were largely intended to provide technical knowledge and advice appropriate across CPR sites and over a long time-frame. As the FMSP acknowledges, this creates its own problems with respect to impact assessment (identifying gradual change attributable to project outputs, for instance). Some of the projects associated with enhancement fisheries and distinct water-bodies attempted to provide knowledge products for discrete sets of users and were described as *poverty focussed* or *inclusive of the poor* (e.g. Projects R5023, R7917 and R8210).

A questionnaire pro-forma was used to extract key findings and themes from the project FTR and Project Summaries. The resultant questionnaires are shown in Appendix 1 (below), and form the basis for the synthesis (they have been included here as a source of raw material – which might also be useful in the future for further research).

Before synthesising the CPR-related research, this section lists the coverage and type of CPR knowledge (or key themes) generated across the Programme with specific examples.

3.3. Cluster 2 – Livelihoods appraisals³

The livelihoods focus of these projects provided great scope for analysing and discussing **poverty-related issues at the local level** and examining current or future **policy approaches**. The CPR is framed in terms of its function for the poor and the emphasis is on behaviour, practice and strategies of fishers. The project contribution to CPR knowledge has been to both provide qualitative, detailed analysis of context (social and economic aspects of the fishery CPR) and recommendation for future policy. Other projects within FMSP apply some livelihoods aspects to their approach but do not necessarily view fishery CPR as just one of several inter-linked options for the poor.

Some of the findings are novel, counter-intuitive and have obvious significance in relation to future policy and management approaches and research priorities such as the findings (see Box 3) from Indonesia and Malawi that fluctuating stocks were not necessarily an impediment to livelihoods but were in fact the very foundation of how those livelihoods and cultures and evolved.

Box 3. Addressing Assumptions and Future Research Priorities for CPR Management: Examples from Indonesia and Malawi

The purpose of Project R7336 (Sustainable livelihoods from fluctuating fisheries) was to identify management regimes and development policies appropriate to the delivery of maximum benefits to subsistence and small scale commercial fishers dependent on fish stocks that fluctuate extensively, so that livelihoods may be sustained and improved and poverty in fishing communities reduced. The project examined the livelihoods of small-scale and subsistence fishers in Lake Malawi and marine pelagic fishers in West Java (Indonesia). Whilst the CPR were not of overwhelming importance to either group (those in Malawi were predominantly farmers, those in West Java were not the poorest of the poor) the way CPR were managed was of critical importance to their livelihoods overall. What is more, the assumption that fluctuating stocks necessarily impact livelihoods negatively was challenged. Migrant fishers in Malawi and Indonesia were shown to possess considerable assets and provide economic benefits to settled communities. Newly established village level committees to manage resources were failing because they did not acknowledge the geographic and occupational mobility of fishers. Thus a conclusion of the research was that future policy should examine less rigid management units related to ecological zonation or occupation but rather taken into account the migratory needs of some groups. How to incorporate migration patterns into CPR usage is clearly a topic that requires further research.

This research has contributed new understanding of the **norms/processes and rules (formal and informal) that shape *de facto* CPR management**, although the knowledge generated is location-specific, rather than generic knowledge. In this

³ Projects R7336, R8118 and R8196.

respect the livelihoods research lists considerable detail of both current policy and governments' approach to regulation but also the manifestation of this at the level of the fishery and the role played by fishers and other actors and interests.

All the projects provide discussion of the disparity between *de jure* and *de facto* **access arrangements**. Providing commentaries on government, policy and administrative trends sets the background to **explaining performance** at the local level but the livelihoods approach adopted allowed for discussion of non-fishery CPR and other factors such as how the impact of land-scarcity, the rising value of agricultural land and the subsequent conflict over water usage on fisheries objectives was affecting CPR management (see Box 4).

Box 4. Factors which affect CPR management performance – examples from South and South-East Asia

Project R8118 (Understanding livelihoods dependent on inland fisheries in Bangladesh and South East Asia) described the livelihoods of fisheries dependent communities in South East Asia, research was based on detailed case-studies in Bangladesh, Cambodia, Laos and Vietnam. The project uncovered a variety of constraints to the management of CPR. In Bangladesh and Vietnam the discrepancy between fishery policy objectives and outcomes is widening as the value of agricultural land increases and the intensification of farm production has led to greater conflict over water as the CPR. Consequently powerful groups have been able to monopolise access to water for fishing and irrigation. Agriculture and fisheries policy do not yet properly address water (the CPR) as a cross-sectoral resource or the social impact of recent ownership trends. Inadequate legal structures were identified as constraints to management particularly in Lao where legal frameworks are not able to keep pace with advances in biological knowledge which greatly impacts on how CPR are exploited. Finally infrastructures such as flood defences in Bangladesh and Vietnam, hydro-electric dams in Lao and the downstream effects of dams in Cambodia all further complicate the management of CPR.

The messages generated by livelihoods research can be involved. In this regard, it is not just a question of whether the locally-specific CPR knowledge is relevant or transferable but whether this approach to thinking about social and economic consequences of the policy approach or fisher behaviour itself is applicable and useful.

However, some of the outputs generated are clearly useful outside the study areas and certain of the principles and recommendations obviously have relevance elsewhere. For instance, while the social characteristics and rules of use deployed by migratory and settled fishers in Malawi are obviously unique, the consequences of occupational and geographic mobility have repercussions in other developing countries and across international borders. Recommendations to **match institutional frameworks not just to the CPR but with the social context are just as relevant in other systems** e.g. for other parts of Africa with important artisanal pelagic fisheries and migrant fishing communities such as in the Gulf of Guinea. In this respect these projects have contributed to a wider understanding of the social and development function of CPR⁴.

One of the ways in which the projects generated new CPR knowledge was **to uncover the complexity of local rules** in use at the sites. Overly anthropological reporting may provide knowledge of limited use elsewhere but this research draws on themes which are relatively generic. Using the livelihoods framework helped anchor the analysis and reporting of the **significance of these rules**, not merely in terms of the

⁴ The common *property* resource aspect of CPR features here so that the “resource” is seen connected to society through an array of formal and informal systems of use.

impact on the CPR, but with respect to the function of the CPR in terms of livelihoods security and function.

A number of the projects conducted the same research in several countries. The projects describe the formal structures (legal and institutional) deployed to manage the CPR and describe their actual performance. Unfortunately, at times it is difficult to derive generalisations on variations in performance (control of effort or poverty focus etc.) because this requires disentangling the role of the governance, social and biophysical (CPR) setting (possible further areas of research in the future?).

With respect to the legal and policy frameworks, the **dualism between state and local objectives and processes** (their overlap, in addition to contradictions and conflicts) are universal but were not previously widely discussed. The Cluster 2 projects do discuss this relationship. However, the sophistication of the livelihoods framework has since increased as the importance of governance issues has become more apparent and incorporated within the policies, institutions and processes (PIP) terminology. There is room to develop the discussion of the wider significance of institutions to governance in the future.

Some further examples of knowledge types (or themes) are given below:

	CPR knowledge type
R7336 <i>SLs from fluctuating fisheries</i>	Formal rules & <i>de facto</i> regimes Social features of production system Economic role & poverty
R8118 <i>Inland fisheries livelihoods</i>	Formal rules & <i>de facto</i> regimes Social features of production system Economic role & poverty Cross-sectoral & seasonal features
R8196 <i>Fisheries associated livelihoods & constraints</i>	Formal rules & <i>de facto</i> regimes Social features of production system Economic role & poverty

Formal rules & *de facto* regimes:

For Bangladesh, Cambodia, Vietnam, Laos, Kenya, Tanzania, Malawi & Indonesia fisheries-related policy and regulatory frameworks outlined. Actual practice (rights of use and access) outlined at local CPR level. Great detail provided for Bangladesh, Cambodia and Malawi. **(KS2)**⁵

Social features of production system:

The livelihoods function of the CPR in question outlined. Especially the function of the CPR to different sections of society (migratory and settled communities, water-body lessee or full-time fishers etc.) and preferential access arrangements based on ethnicity etc. **(KS1)**

Economic role & poverty:

The national and local economic contribution of the fishery CPR are outlined. The CPR is discussed in relation to employment, nutrition, and livelihoods security. **(KS1)**

⁵ Marker for KeySheet 2.

Cross-sectoral & seasonal features:

The link between the CPR, fisheries and other economic activity/functions is detailed. Water as the CPR is stressed in Bangladesh as is the temporal aspect of CPR and their support function (especially with respect to Bangladesh and Malawi). (KS2)

3.4. Cluster 7 – Generic management guidelines⁶

These projects represent a range of strategies to produce new knowledge and guidance for pro-poor management approaches. Although incorporated within the capture fisheries project theme (Theme 4) the projects also include research in enhancement fisheries which primarily seek to increase yields.

ENHANCEMENT FISHERY PROJECTS⁷

Several of these projects assume that CPR stakeholders or users, themselves, require greater knowledge of technical options for more effective management.

The adaptive learning projects (Project R7335 and R8292) directly tackle institutional issues and constraints to uptake while the ongoing follow-up project (R8292) seeks to apply participatory learning approaches developed during R7335 in “*different resource systems and institutional arrangements*” in other countries⁸. In doing so the projects provide templates for **improved performance of management regimes by supporting the knowledge uptake process** which ultimately builds capacity for the management CPR (see Box 5). However, the types of management and technological options in the countries concerned are presumably relatively simple and defined. As privately or group managed fisheries, these sites have less muddled use rights and less linkage with other users than many capture fishery CPR. However, any lessons learned in promoting uptake and achieving positive change may be transferable to other CPR contexts.

Box 5: Approaches for Improved CPR Management Performance – examples of knowledge transfer and uptake approaches developed for enhancement fisheries in SE Asia.

Projects R7335 and R8292 (Adaptive learning approaches to fisheries management and Uptake of adaptive learning approaches for enhancement fisheries respectively) both aimed to increase the transferability and uptake potential of adaptive learning tools (where external institutions—governmental and non-governmental research-based organisations—can facilitate experimental learning by resource users) and approaches beneficial to poor people’s livelihoods. The foundation for the projects was that the management of enhanced fisheries must be carefully tailored to local ecological and institutional conditions in order to provide maximum benefits in a sustainable manner. Adaptive learning approaches hold the key to the development of locally appropriate enhancements. The projects tested products (process methodologies, adaptive models) developed over the course of a series of projects (particularly R6338CB), in different types of enhanced fisheries in new institutional settings. The projects (and their predecessor) noted that knowledge about how information was disseminated was lacking and this lacunae was hindering methods of improving the management of CPR. The project has been working specifically with enhancement fisheries in South East Asia.

⁶ Projects R4777, 5023, 5953, 6436, 7043, 7042, 7335, 7334, 7917, 8210, 8249, 8285, 8292 and 8294.

⁷ For the purposes of this discussion these projects are taken to include: technical support to enhancement fisheries and the guidance for developing fish aggregating device (FAD) programmes (R4777); modified or enhancement fisheries linked to the floodplain CPR (Projects R 5023, 5953, 7917 and R8210) and; the investigation of learning strategies in stocked fisheries management (Project R7335 and R8292).

⁸ R7335 followed on from a previous project (R6338CB, not part of this cluster) which went into the social and institutional issues in considerable depth; this information was obviously not repeated in the follow-on project. Further information on the findings of R6338CB can be found in Garaway (in press) and Lorenzen and Garaway (1998).

CPR knowledge type

R7335	<i>Adaptive learning approaches</i>	Country-specific institutional framework Participatory learning (planning) Alternative management arrangements
R8292	<i>Uptake of adaptive leaning approaches</i>	Regional institutional framework Participatory learning (planning) Alternative management arrangements

Country-specific institutional setting (formal):

Greater knowledge of the identity and mode of operation of key institutions relevant to enhanced fisheries in Lao. **(KS2)**

Regional institutional framework (formal):

Greater knowledge of the identity and mode of operation of key institutions relevant to enhanced fisheries in Lao, Cambodia, Vietnam and India. **(KS2)**

Participatory learning (planning):

Outlined methodology to initiate co-development of stocking regimes with users and methods to document and promote the approach. **(KS3)**

Alternative management arrangements:

Review of the range of management approaches (ownership, technical and decision-making) in operation. **(KS3)**

Projects R5023 and R5953 provide quantitative evidence for potential, substantial increased production from floodplain fisheries if limits could be applied to the use of barrier traps and the introduction of dry season reserves and close season regimes. Project R5953 provides quantitative information on the water-body licensing systems in Bangladesh and Indonesia together with other Indonesian village-level systems outside the study area, opposing access to outsiders and apparently providing incentives for restraint.

These early projects were not intended to provide a cross-sectoral perspective of water as the CPR or the impact and benefits of flood control structures, or the Flood Action Plan in Bangladesh, but did suggest fisher representation in sluice gate management committees⁹.

Project R8210 treated water as the unifying CPR and produced guidelines for the management of structures. Greater understanding of the link between the fishery and the agricultural systems was achieved and the function of water to the poor was

⁹ True representation (by fishers) appears not to have been achieved in this respect and landowner interests have dominated management (see NRSP Projects R8195 – “Integrated floodplain management - institutional environments and participatory methods” and R6755 – “Sustainable local water resource management in Bangladesh: Meeting needs & resolving conflicts”).

outlined with respect to livelihoods. Some of the CPR knowledge relates to current understanding/suggestions by the CPR users themselves derived through participatory survey (these focus on the prospective constitutions of committees and operational rules).

		CPR knowledge type
R5023	<i>Yield of small reservoirs (S. Asia)</i>	Stock dynamics Alternative management arrangements
R5953	<i>Fisheries dynamics in modified flood plains</i>	Stock dynamics Alternative management arrangements
R8210	<i>Use of sluice gates for stock enhancement</i>	Stock dynamics Proposals for water management

Stock dynamics: (KS2)

Reproductive behaviour, recruitment, migration and impact of structures and fishing effort.

Alternative management arrangements:

Comparative review of formal ownership and management rules (village committee, private and state – Thailand, China and India respectively (5023), Indonesia versus Bangladesh licence system (5953). **(KS2&3)**

Proposals for water management:

Technical guidance for sluice gate operation and review of responsibility by stakeholder. **(KS3)**

Although the focus of Project R7917 is self-recruiting species (SRS), the project attempted to understand access to this resource in relation to the temporal and spatial dynamics of the floodplain CPR. New CPR knowledge was generated relating mainly to the socio-economic role such resources provide and their function within livelihoods of the poor. Alternative management approaches (technical) were tested at village level and this will provide the basis for guidelines. The project acknowledges the trade-offs and conflicting agriculture and fisheries uses of the floodplain (water) CPR but states “*appropriate management practices...can raise SRS production substantially*”. The project stresses current and potential CPR *utilisation* rather than current *de facto* CPR management arrangements.

		CPR knowledge type
R7917	<i>Self-recruiting species</i>	Economic role & poverty Technical management options

Economic role & poverty:

The role of the floodplain in relation to alternative uses/functions and its significance to the poor. **(KS1)**

Technical management options:

Alternative village-level practice to optimise benefits of recruitment. **(KS3)**

Project R4777¹⁰ offered a comprehensive overview of the role of FAD in the Pacific and set out guidelines for fisheries staff. Analysis of the impact on stocks is included. The CPR issues that arise relate to the alternative access and management regimes attributable to these structures. Potential social and economic problems (conflict, over-exploitation) are acknowledged but not fully explored.

CPR knowledge type

R4777 *Analysis of FAD*

Alternative management arrangements
Impacts on stock

Alternative management arrangements:

Preliminary discussion of community and privately managed options and possible outcomes. **(KS3)**

Impacts on stock:

Effect on recruitment, catch and methods to monitor change. **(KS2)**

CAPTURE FISHERY PROJECTS

The projects in this section examine the issues relating to capture fisheries and improved management in different parts of the world, in different types of fisheries and using a variety of approaches. The projects are reviewed here in order of their inception.

Project R6436 assessed the economic and social functions of customary marine resource management in Fiji and Vanuatu. In addition to reviewing the fisheries with respect to national and local economic roles, the project provides considerable case study material related to the complexity of local rules of access. The dualism between national legislative structures and these customary systems is discussed and concluded as broadly compatible. Although the analysis was not couched in livelihoods terms, the emphasis was on socio-economic function and the vulnerability of these systems with respect to threats from external pressure and diminishing local rights or influence. As such, the importance of CPR to the poor were highlighted (as shown in Box 6). The stability and relevance of these customary systems for the reef CPR were considered but the analysis focussed on their relationship to national, formal structures rather more than changing processes and *de facto* outcomes at local level.

Box 6: The Importance of CPR to the poor – examples from South and SE Asia and the Pacific

Projects R7917 and R6436 (“Self recruiting species in aquaculture – their role in sustainable livelihoods” and “The performance of customary marine tenure (CMT) in the management of community fisheries resources in Melanesia” respectively) were designed to characterise the role of CPR resources and access and management to those resources for resource users. In the case of R7917 in particular, the purpose of the project was to enhance the production of, and access to, such resources by the poor. Whilst using different approaches (R7917 was more concerned with the technical aspects of self-recruiting species; R6436 was more concerned with characterising access and use-rights) both projects demonstrated the level of dependence that the poor have on CPR and how that dependence is both supported (R7917) and threatened (R6436) by changes to the policy environment. In all study sites (Bangladesh, India, Cambodia, Vietnam, Thailand, Fiji, Vanuatu) CPR were important to the poor although the degree of dependence varied. In Bangladesh, Cambodia and Melanesia in particular fisheries were not only a key part of livelihood strategies but also important to the wider economy – a factor which has a direct impact on the poor in terms of longer-term development. However, the projects noted that the lack of information on non-fisheries CPR goods (frogs, snails for example) was likely to have a detrimental impact on the poor if further development erodes these resources (R7917) and the changing nature of society (R6436) was also eroding traditionally established roles of CPR for the poor.

Drawing from South Pacific Commission – FAD manual vol. 1.

CPR knowledge type

R6436 *Customary marine tenure - Melanesia* Economic role
Formal rules & local systems

Economic role:

Themes in Melanesia including rapid expansion of the commercial sector (Fiji) and role of natural resource CPR to a large proportion of the population (Vanuatu). **(KS1)**

Formal rules & local systems:

Policy and law relating to CPR (primarily inshore fishery) outlined and detailed outline of community Rights Areas with distinct rules of use. Tribal rights to land and reef CPR codified in law (Vanuatu). **(KS2)**

Project R7043 reviewed the potential management criteria of harvest reserves for the co-management of tropical river fisheries. The ecological, social and institutional context of fisheries in South Sumatra, West Kalimantan and Jambi was examined and the purpose of the project was to deliver economic benefits through enhanced recruitment and improved management.

The focus of the work was to evaluate the potential of managing the river fishery CPR through relatively discrete reserves, each with their own locally-relevant system of management and rules of use. Central to the approach was the biological and ecological knowledge derived through R5953 and the distinction between species with mobile (whitefish) or sedentary life histories (blackfish).

One output of the project was to provide an institutional analysis of the study locations. The legal and formal structure of *de jure* management arrangements are described and comments on their overall effectiveness provided. However, the performance of the management system is gauged mainly with respect to its ability to regulate (restrain) effort. This fits with the overall premise of the research project – that reserves could be suitable instruments for tropical river fisheries co-management *if* suitable management designs can be identified to accommodate them¹¹. Accordingly, guidelines are produced that provide advice on building the capacity of village co-management units.

However, the project did define “reserves” in relation to the inter-connectedness of the fishery CPR (others can benefit, or be impacted by, their management) and the potential gains derived by fishers, themselves.

Project R7042 examined the feasibility of applying fisheries information database to fisheries co-management. The project undertook an extensive review of the fisheries and current monitoring strategies in the Turks and Caicos Islands and Bangladesh and the intention was to accommodate fisher management objectives with national management objectives and policy. The project contributed much new knowledge in relation to the *de jure* and technical management mechanisms intended to function

¹¹ The next problem is to institutionalise more appropriate forms of management.

and some new knowledge in relation to *de facto* outcomes and fisher behaviour at the local level.

The premise of the research was that greater knowledge of the fishery (in this case, primarily the stock) was a vital prerequisite for rational management. The project did acknowledge the limits of fisheries institutions to collect and manage data and, crucially, to enact management changes in response. Again, this relates to the broader “institutional” setting of developing countries that present limits to uptake (see Section 3.)

CPR knowledge type

R7043	<i>Selection criteria for river fisheries</i>	Alternative management arrangements Country-specific institutional framework
R7042	<i>Information systems for co-management</i>	Country-specific institutional framework Alternative monitoring of the CPR

Alternative management arrangements:

In R7043, co-management framework based on inter-connected “reserves” with locally-modified management regimes. **(KS3)**

Country-specific institutional framework:

Legislative and (formal) institutional setting for Indonesian fisheries management outlined. In the case of R7042, the monitoring and regulatory framework associated with the fishery CPR. **(KS2)**

Alternative monitoring of the CPR:

Potential, country-specific data collection and CPR (fishery) data management approaches. **(KS3)**

Projects R7334 and R8294 offer an alternative contribution to fisheries management research and deal entirely with existing fisheries management problems (in this case, conflict) and their significance to the poor. Consequently, both projects are able to contribute to approaches for improving CPR management through improvement management of conflict (see Box 7). Project R7334 analysed conflict in relation to change (commercialisation of the sector, demographic change, resource uncertainty and fluctuations etc.). The project uncovered the multiple causes of conflict in the floodplain CPR of Bangladesh, the apparently promising developments in co-management of the artisanal inshore sector of Ghana and the role of social heterogeneity in relieving potential conflict in the Turks and Caicos Islands. The livelihoods framework does not provide the basis for analysis but the role of the floodplain, inshore and coral reef CPR are discussed in relation to their function for local beneficiaries. The project contributes considerable knowledge in relation to local, *de facto*, management systems, particularly with respect to the traditional, tribal management system operating in coastal Ghana. Detailed alternative management arrangements, institutions or conflict-management tools were not proposed.

The ongoing Project R8294 seeks to examine these themes in Bangladesh, Cambodia and India and to develop strategies to promote conflict management (approaches and tools such as consensus building developed and tested in other NRSP projects).

Box 7: Approaches for improving CPR Management Performance

Improving the way fisheries conflicts are managed was the focus of projects R7334 (“The Management of Conflict in Tropical Fisheries”) and R8294 (“Enabling better management of fisheries conflicts”). Conflicts are prevalent in fisheries and an endemic feature of CPRs where use-rights, ownership and access are often missing or contested. Thus both projects were able to contribute to new and improved approaches for CPR management performance. R7334 focussed on identifying extant management methods for dealing with conflict. It highlighted the innovative measures being taken in West Africa where traditional fisheries management has been incorporated into new state structures; the role of social capital in the management of conflict in the Caribbean and the considerable problems relating to conflict management on the Bangladeshi floodplains. R8294 is the follow-on project which builds upon the information base established by R7334. Both projects highlighted the lack of information on conflict and also drew attention to the complex of institutions which affect CPR management performance.

CPR knowledge type

R7334 *Management of conflict*

Formal rules & *de facto* regimes
Social features of production system
Economic role & poverty
Cross-sectoral & seasonal features

R8294 *Enabling better management of conflict*

n/a

Formal rules & *de facto* regimes:

National legislative and institutional arrangements for the fishery CPR outlined, together with local reality of management and practice. **(KS2)**

Social features of production system:

The function of the CPR to local users and additional beneficiaries examined in relation to livelihoods options, including the migrant inshore fishers of Ghana and West Africa. **(KS2)**

Economic role & poverty:

National and local contribution of the fishery CPR to economy and livelihoods of poor, more generally. **(KS1)**

Cross-sectoral & seasonal features:

Particularly with reference to Bangladesh floodplain CPR and also seasonal pelagic fishery of coastal Ghana. **(KS1&2)**

Project R8249 applies a livelihoods approach to the analysis of a management tool previously viewed with respect to biological and technical issues. FAD in East Africa are discussed in relation to the function they might provide to people currently dependent on the inshore pelagic fishery. The national and local contribution of the fishery is outlined and the role of the fishery to resource poor users at different points in the year is explained.

As with R4777, the CPR issue here is how the FAD structures re-shape ownership and control aspects of the fishery. Alternative management options are discussed (national, NGO, community) with respect to rights to exclude and rights of use. The costs of guarding the structures are considered a major constraint and in this respect they fail to delimit the CPR effectively. The project states that local institutions (village and community level) may lack the ability to coordinate construction, placing and policing of FAD.

Analysis of the legal framework in Tanzania suggests that granting special rights to FAD owners and operators may be problematic. However, recent programmes to implement participatory marine resource management have succeeded in this regard.

The project approach stressed the livelihoods assets of potential users but did attempt to incorporate an analysis of policies, institutions and policies shaping access to benefits. However, *de facto* access and conflict that relates to informal institutions or power issues (rather than government bodies and administrations) are not discussed.

CPR knowledge type

R8249 <i>Livelihoods assets for East African FAD</i>	Economic role and poverty Country-specific institutional framework Alternative management arrangements
-------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------

Economic role and poverty:

The importance of pelagic resources to local people and the national economy outlined and the seasonal significance of the resource highlighted. **(KS1)**

Country-specific institutional framework:

Legal structure of Tanzania discussed in relation to decentralised jurisdiction of FAD and natural resources. **(KS2)**

Alternative management arrangements:

Overview of prospects for state, NGO or group/village FAD management. **(KS3)**

Although Project R8285 draws on a similar approach to R7042, the focus was expanded to enable sharing of qualitative aspects of alternative management systems and experience. In this respect the project acknowledges the diversity and complexity of CPR management systems. Again the assumption is that lacking knowledge (the state's and the resource users') is the key constraint to improved management.

In collaboration with the Mekong Basin countries, Bangladesh, the Philippines, Mozambique and Uganda guidelines have recently been developed to help promote suitable processes for monitoring, reporting and performance feedback to the full range of fishery CPR stakeholders. Although the approach incorporates the character of actual resource management regimes (rather than technical or biological knowledge in isolation), at this stage it is unclear if these processes will be taken up in the long-term.

CPR knowledge type

R8285 Fisheries data collection & sharing

Country-specific institutional framework
Alternative monitoring of the CPR

Country-specific institutional framework:

Current monitoring frameworks and issues outlined in the nine countries via consultation. **(KS2)**

Alternative monitoring of the CPR:

Generic guidelines generated for national fisheries departments (for national and regional reporting, including management of local activities and management of migratory resources). **(KS3)**

4. Synthesis And Discussion

There is a considerable bank of CPR-related knowledge generated by the FMSP. The Cluster 2 projects, for instance, help to increase understanding of the features that are distinct to the study countries and their impact and relevance to the poor. This knowledge comprises a greater qualitative understanding of the complexity of CPR and their interaction with society. In addition, considerable documentation now exists on the specifics of informal institutions and access rules at the local level. *De jure* CPR regulations as national policy and law declared by the state are outlined but their meaning is discussed in relation to outcomes for the CPR and for the poor.

Together, the range of CPR knowledge derived from the Cluster 7 projects is as wide, although the significance of their findings and approaches are perhaps better understood when viewed together. For instance, the breadth of CPR analysis in Projects R5023, R5953 and R8210 increases as the technical and biological aspects of the fishery are developed to include the social and poverty significance of floodplain water resources in the most recent project. Similarly, the relevance of this technical knowledge of the fishery is increased as methods to manage and process fisheries data are explored in R7042 and R8285.

Table 1 below presents project coverage with respect to purpose, CPR setting and contribution with respect to specific new knowledge and understanding (this may be location-specific).

Table 1. Key CPR coverage and knowledge contributions of the FMSP projects (Cluster 2 & 7).

Project	Purpose	CPR issues / setting	Contributions to CPR knowledge
R4777 (cluster 7) 91-94	Analysis of Fish aggregating devices	Uncover technical & management requirements for FAD & produce guidance	Pelagic fisheries of S. Pacific (Fiji & Vanuatu)
R5023 (cluster 7) 92-96	Potential Yield of small reservoir fisheries in South Asia	Yield estimate & potential stocking regimes in reservoirs	Diverse CPR management regimes (village committee/state & private sector/state-managed –Thailand, China & India, respectively) Externalities of stocking result – impacts on other users/uses
R5953 (cluster 7) 94-97	Fisheries dynamics of modified floodplains in Southern Asia	Fish population dynamics & impacts of flood control structures to advise management	Complex array of de jure (licensing) & de facto (less project emphasis) access arrangements vary seasonally in Bangladesh. Strictly controlled access in Indonesia. Recognition of mobility of fishers across CPR.
R6436 (cluster 7) 96-99	The performance of customary marine tenure in management of community fisheries resources in Melanesia	Evaluate social & ecological performance of various CMT regimes	NR crucial to Fiji (commercial and subsistence) and Vanuatu (rural economy). Increased pressure (population & commercial exploitation) Patchwork of cooperating Rights Areas with distinct rules of use
R7043 (cluster 7) 97-02	Selection criteria and co-management guidelines for harvest resources in tropical river fisheries	To review social, ecological, and institutional criteria for management & produce guidelines	Focus on performance of state-run “harvest reserve” versus community-based reserves. The latter may be threatened by decentralisation. National legislation & policy is not yet CPR-specific. Some commitment to top-down form of co-management.

Table 1. Key CPR coverage and knowledge contributions of the FMSP projects (Cluster 2 & 7).

Project ID	Topic	Objective	Key Findings/Contributions	Implications/Conclusions
R7042 (cluster 7) 98-01	Information systems for co-management of artisanal fisheries	Examine potential for generic database for co-management	Complex array of de facto & de jure access rules (Bangladesh) versus simple licensing/quota system (Turks & Caicos) Severe limits to current CPR (fisheries) management & knowledge in Bangladesh.	Developed discussion on spatially-defined co-management units & meaning to monitoring. Alternative co-management trials (differing objectives) discussed. Database model for monitoring of stock & effort. Attempt to incorporate social/community-identified criteria & indicators.
R7335 (cluster 7) 99-02	Adaptive learning approaches to fisheries management	To understand & promote exchange of fisheries enhancement	Mixture of new & traditional management systems with rights of extraction & exclusion. Enhanced fisheries are managed collectively via committee (monitoring, stocking, harvesting). <i>De jure</i> legally-recognised village administrations/rules exist but <i>de facto</i> active management & enhancement is minimal.	Description of the various enhanced fishery regimes Recognition that group management model (preferred by government) may have short-comings Project emphasis is technical (ie learning approaches) rather than social (i.e. no access rights & rules – this was covered in previous project R6338CB)
R7336 (cluster 2) 99-01	Sustainable livelihoods from fluctuating fisheries resources	Identify regimes and policies to benefit small fishers dependent on fluctuating stocks	Pelagic lake species managed with established local rules – Malawi. Pelagic marine species managed in relation to national legislation – West Java. Ability to exclude reserved to residents, limited extraction rights granted outsiders. Decentralisation has undermined some pre-existing CPR regimes and excluded previous users - especially migrant, part-time fishers. CPR not necessarily a sink for labour.	Migrant fishers often held greater assets than others in both countries. Access requires capital assets, migrants are exposed to risk but less poor than residents. Problem of assuming new management committee will complement traditional authority ¹² . Acknowledgement of patchwork of de jure (Regional) and de facto (informal, local) access rights and rules in West Java. Recognition & description of varied coping strategies.

¹² This is an extremely important observation since it was investigated further in other NRSP projects such as R8195 – “Integrated floodplain management - institutional environments and participatory methods”. It relates to the social context of CPR management and the presence of pre-existing power relations, interests and motives that extend beyond NRM alone and which can account for the failure of new management regimes or projects.

Table 1. Key CPR coverage and knowledge contributions of the FMSP projects (Cluster 2 & 7).

<p>R7334 (cluster 7) 99-02</p>	<p>The management of conflict in Tropical fisheries</p>	<p>To understand conflict & how it relates to change and management</p>	<p>Water is the principal CPR in Bangladesh - cross-cuts all rural livelihoods.</p> <p>Bangladesh policy for preferential access to “genuine fishers” is exploited by organised groups while co-management projects attempt to represent the poor and establish rules of use.</p> <p>Ghanaian and migrant fishing communities strongly reliant on fluctuating pelagic stocks and in competition with encroaching commercial vessels – de jure zones are flouted.</p> <p>Effort control in Turks & Caicos fishery established via quota, licensing & restrictions on foreigners. Some conflicts with MPA.</p>	<p>Wide range of de jure & de facto arrangements listed for the 3 countries. In particular, details of village management systems in Ghana and its relationship to law and policy (decentralisation). Positive experiences of moulding traditional & statutory for co-management.</p> <p>Overview of the role of coercion in controlling limiting access to de jure open access water bodies in Bangladesh & limits of policy/legal framework.</p> <p>Ghanaian canoe fishery important contributor to local economy & migrant community livelihoods.</p> <p>The role of social homogeneity in Caribbean islands.</p>
<p>R7917 (cluster 7) 00-03</p>	<p>Self recruiting species in aquaculture – their role in sustainable livelihoods</p>	<p>To characterise self-recruiting species systems & ensure suitable regimes & access to poor.</p>	<p>Self-recruiting species move between private & open access waters in Bangladesh according to flood. Systems are more often discrete in Vietnam.</p> <p>Strong rural reliance on wild stocks with community access in Thailand, Vietnam & India.</p> <p>Fishing is a key livelihood associated with rice production, especially in Cambodia.</p>	<p>Increasing privatisation of the commons in Bangladesh reduces wider access to these species.</p> <p>Informal use rules in operation (SE Asia) but undefined.</p> <p>Experimentation with Local Resource User Groups (LRUGs) attempted.</p> <p>Greater knowledge of temporal & spatial aspects of self-recruiting species and potential institutions to manage them.</p>
<p>R8118 (cluster 2) 02-03</p>	<p>Understanding livelihoods dependent on inland fisheries in Bangladesh & South East Asia</p>	<p>Description of fisheries livelihoods to reveal opportunities – Bangladesh, Cambodia, Lao & Vietnam.</p>	<p>Water cross-cuts livelihoods and aquatic resources managed by combination of informal regimes at local level.</p> <p>Enhanced fisheries leased and privatised.</p> <p>Intensified agriculture & aquaculture has reduced access to and extent of the CPR (water and fisheries).</p>	<p>In all countries, poor governance leads to informal management regimes at local level but increased value has exacerbated rent-seeking & violence.</p> <p>A new emphasis on tailoring management to indigenous knowledge should be explored.</p> <p>Informal management generally restricted to extraction rights – timing, area and volume.</p>

Table 1. Key CPR coverage and knowledge contributions of the FMSP projects (Cluster 2 & 7).

R8118 (contd.)			Agrarian character of Laos increases impact of water-related (CPR) issues.	Limits to enforce extraction/withdrawal rights on floodplain ¹³ .
R8196 (cluster 2)	Understanding Fisheries Associated Livelihoods and the Constraints to Their Development in Kenya and Tanzania	Better knowledge to support fishery-associated livelihoods.	Most Tanzanian & Kenyan coastal villages very reliant on the fishery with little employment mobility. Only marine parks in Tanzania are well-regulated, other fishery CPR are relatively open access. Livelihoods analysis reveals lack of skills, capital & mobility.	Review of policy - it attempts to maximise production over marginal CPR functions. Cambodia co-management still requires proper local facilitation to avoid open access. Commentary on the lack of coordination between government departments and commentary on the decentralisation process. Kenya has attempted to devolve fisheries management by reinstating traditional management institutions as Beach Management Committees but these structures have been challenged. Similar structures have been introduced at Lake Victoria but require greater DoF support. Project has policy framework not local regime focus.
R8210 (cluster 7)	The use of sluice gates for stock enhancement and diversification of livelihoods	Optimise sluice gate management for fisheries & agriculture & improve management capacity of poor users.	Complex arrangement of private land and de jure open access (de facto controlled) floodwater. Water is the key CPR across livelihoods – crucial contribution to development goals, food security. Sluice Gate Committee members are granted management rights (timing of gate use) but other local stakeholders have use rights ¹⁴ .	Detailed analysis of the impact of new (sluice gate) management regime on landless and fishers. Analysis of the constraint to effective management (lacking coordination, internal cooperation, external support, lacking representation). Sluice gate management is integral part of National water management Plan but enactment is the constraint.

¹³ Again, an acknowledgement of the role of the informal institutional environment. In this case, the ability of some to exert social controls on others that negate or directly override alternative management practice or rules.

¹⁴ Subsequent NRSP research supports the view that these committees are either largely defunct or maintained by elites to monopolise the use (or non-use) of these structures. See Project R8195 – “Integrated floodplain management - institutional environments and participatory methods” and R6755 – “Sustainable local water resource management in Bangladesh: Meeting needs & resolving conflicts”.

Table 1. Key CPR coverage and knowledge contributions of the FMSP projects (Cluster 2 & 7).

R8249 (cluster 7) 2003	Livelihoods assets required for an East Africa FAD Programme	Using evidence from Tanzania, uncover livelihoods requirements for FAD programmes	De jure management enables exclusion of vessel types within EEZ. FAD, themselves, offer interesting property rights questions – exclusion is difficult to achieve but encourages private access. Local demand for pelagic species remains high (tourist & local population).	Alternative bundles of use rights are discussed (dependent on identity of owner – NGO, private, government) Institutional constraints discussed (lack of social coordination, lacking tradition of access control & regulation).
R8285 (cluster 7) 03-05	Fisheries Data Collection and Sharing mechanisms for co-management	Develop knowledge sharing for better co-management	All fisheries under co-management targeted (a range of CPR). Assumption - lacking data prohibits sustainable CPR management	Data gaps discussed – in particular with respect to “informal” sector – lack of statistics
R8292 (cluster 7) 03-05	Uptake of adaptive learning approaches for enhancement fisheries	Increase uptake of successful approaches already developed (follows from R7335)	Knowledge gaps in the uptake process & transfer of new knowledge/practice relevant to CPR management remain for Lao, Cambodia, India and Vietnam. Failure not well understood.	FTR not yet available.
R8294 (cluster 7) 03-05	Enabling better management of fisheries conflicts	-	Poorest denied access to CPR in Bangladesh & Cambodia, poor contest access with commercial vessels in coastal regions	FTR not yet available.

Jointly the projects contribute to an understanding of CPR with respect to:

- existing management arrangements and their function for the poor;
- constraints to implementing better management (national and local, formal and informal issues);
- optimal management arrangements for discrete (species, stocks, physical structures) components of the fishery CPR and;
- desirable formal arrangements for monitoring and processing information (Table 2).

Table 2: The CPR themes explored

CPR issues	Key examples
Existing management and poverty	Crucial contribution of capture fisheries (less so enhancement fisheries) to livelihoods of the poor with reduced assets (especially R7336, R8118, R8196) ¹⁵ Viability of new, introduced, management structures questionable (especially R7336);
Constraints to better management	Limited degree of policy/departmental coordination – need for cross-sectoral focus (especially R8118); Limited ability to control character of de facto use / “rules” of use e.g. Jalmohal lease bypasses the poor, Cambodian fish lots captured by powerful (especially R8118); Variable capacity to collect and process relevant information (especially R7042)
Optimal management for CPR sub-units	Technical and institutional regimes for fisheries management can be identified i.e. Flood control structures, stocked ponds etc (delimited CPR) (most Cluster 7 projects) Management/planning models can be applied and modified by new sets of users in aquaculture context (R7335, R8292);
Monitoring systems	Floodplain and river co-management might incorporate combinations of administrative (village level etc) or hydrologically-defined units (especially R5953 & R7043 but also R7335) Fisheries information systems could incorporate both qualitative and quantitative data for full range of users in co-management (R7042 & R8285)

The wide range of information generated by the FMSP projects concerning CPR (fisheries) management can be of great value to policy-makers in the future, and the intention in the next phase of the project is to develop a series of four key-sheets (as outlined in Section 1 above). A first attempt at summarising this information within the four policy brief headings is given below, and this will be further elaborated in the future as the policy briefs are developed.

The projects and CPR theory

Although not necessarily a weakness, few of these projects relate empirical observation or proposed management arrangements to CPR theory. Some project reports under R7335, R7042, R7834, R8285 did frame the CPR and its interactions with society with reference to Oakerson (1990) or the closely related IAD framework. The function here was to discuss the interaction and feedback between systems of rules and the performance of the resource, and to draw on Oakerson's distinction between operational rules that attempt to dictate user's behaviour and constitutional rules that dictate the mechanism by which these rules are reached and agreed.

¹⁵ It is worth noting that R6338CB, though not in this cluster, provided much of the foundation to R7335 and contributes to this CPR issue.

However, the previous emphasis on the norms and processes (rules) that shape CPR management is being superseded by growing interest in the formal and informal institutions (as defined earlier) that impact and influence management. Many of the projects attempt to identify suitable institutions for CPR management but primarily as structures – user groups, sluice gate committees, village committees – not as processes of repeated behaviour or types of interaction. The problems of establishing such structures are alluded to in some projects (R8118 and R7336) but not examined in detail (a future research priority?).

The importance of CPR (fisheries) to the poor in the developing countries

The project contribution here relates to both the wider, national economic role played by the sector and the function the fisheries CPR provide with respect to livelihoods. With respect to the former, international and national statistics are quoted by nearly all project reports. In the case of livelihoods, Cluster 2 projects, R7334 and R8247 emphasise some of the more subtle or hidden contributions to the welfare of the poor. Overall, the research provides a greater qualitative understanding of the function of the fishery CPR to the poor rather than detailed information on its economic contribution nationally.

The settings of the research are diverse but the contribution provided by R8118 provides an in-depth overview of the role of livelihoods to the poor which could provide lessons and relevant examples elsewhere (how power relations are played out in Bangladesh; how use-rights are determined by state/community bodies in Laos for example). For instance, the land-water interface of the floodplain CPR in Bangladesh represents many of the roles these natural resources play for the poor (a potential source of animal protein, employment, income and irrigable water) and demonstrates many of the externalities associated with CPR use.

The livelihood approach of Cluster 2 projects also highlights the complexity of the relationship between poverty and fishery CPR. For instance, access to fisheries is rarely open to all, can be highly contested resulting in conflict and fisheries do not always provide a livelihood activity of the last resort for the vulnerable. These projects emphasise the primary dependence on access to a wide range of CPR and the relationship of fisheries to other economic activities of the poor.

The capture fishery projects associated with the modelling of stocks were less concerned with the types of potential benefits for the poor. Maximised production was considered the principle objective of management.

The physical, bounded character of most stocked fisheries mean that the enhancement projects focussed on technical aspects of production and the dissemination of this new knowledge. However, these projects have not provided clear indications of how successful new management approaches may be with respect to relieving poverty or influencing policy or uptake.¹⁶

Factors which affect CPR (fisheries) management performance in developing countries

As discussed, the CPR concerns the natural resource rather than the *property* and management regime under which it is managed.

¹⁶ Projects such as R7917 have investigated the differential socio-economic impact of alternative practice, however.

There are some key lessons to be learned from the FMSP with respect to the factors that currently influence management performance. These lessons can be derived from both the project outputs and reports and the experience and contributions of research since conducted under NRSP (which will also be examine during the course of this project; to complement the current findings).

Many of the projects detail the limits of the current management systems to achieving sustainable or pro-poor outcomes. These limitations are discussed in relation to failure to implement national legislation or policy e.g. the inability of states to meet current national and international reporting obligations (R7042 & R8285) or unsustainable behaviour at the local level (R8118, R7336 and R7334), for instance. However, many of the projects that discuss management failure do not offer detailed explanations to its underlying causes (there is further need of research).

With respect to common themes, complex environments such as the CPR floodplain of Bangladesh were shown to represent a challenge to formal sector-specific institutions while ownership and demographic changes increase the likelihood of conflict, locally. With coastal CPR, similar pressures from new entrants, increased effort and the failure to exert granted rights seem a recurrent problem.

Some of the Cluster 2 projects framed the problem of achieving good management with respect to the complexity of the CPR *and* the social and political environment. For instance, while stocks are difficult to delimit, ethnic diversity and mobility of the poor between sectors make the allocation of rights and lines of jurisdiction problematic (R7336).

Some of the capture fisheries projects attempted an understanding of the technical limits to maximising returns from the fishery CPR.

The livelihoods projects enabled the researchers to discuss in detail local forms of management and practice. In some cases, destructive and counter-intuitive practice was explained in relation to competing resource uses (especially agriculture and rice production) and social constraints that limit opportunities for pro-poor and collective management approaches. These constraints should be discussed in relation to the institutions¹⁷ that shape and influence management performance and that relate to governance (see Box 5.)

Box 5. Acknowledging the range of formal & informal institutions (from Project R7334) – example from Ghana

In coastal Ghana there are aspects of traditional village management systems that continue to influence fisher behaviour, mediate access to CPR and resolve conflicts. These informal institutions (rules and structures) have been deliberately accommodated within the national policy and legislation for decentralisation and co-management. The state can work through existing power structures for legitimacy rather than attempt to introduce new management bodies.

¹⁷ As defined by Leach et al (ibid).

Approaches for improving CPR (fisheries) management performance in developing countries

As discussed above, the technical research projects within the FMSP contribute new knowledge associated with relatively discrete aspects of the fishery or water CPR. It was possible to generate idealised and/or actual sluice gate management regimes that will optimise fish production and to make suggestions as how this might be instituted, for instance. Similarly, the work on FAD has developed sets of management guidelines for their technical management. However, there appears a need to combine this form of research with other work which undertakes a broader livelihoods approach and an awareness of the common constraints to achieving desirable forms of management (see below).

Participatory approaches, set with a 'process', to developing locally-relevant and accepted forms of management may be useful in some settings. The work of R7335 and R8292 suggests that adaptive approaches to repeated sets of management problems and sets of potential solutions can be successful (in this case, bounded water-bodies represent the recurring management unit and set of ownership, stocking issues etc.). In other contexts, conflict resolution tools or consensus building may seek to explore management options that benefit competing interests and uses.

Future research priorities for CPR (fisheries) management in developing countries.

Considerable technical knowledge has been accumulated by the FMSP and there is a need to assess how this knowledge has been applied and what constraints operate to limit its uptake and use.

The role of participatory approaches was discussed above but it is likely that greater attention will be paid to rights-based approaches (access to “voice” and political capital) rather than to facilitated processes in the future.

The volume of new CPR knowledge generated by FMSP is considerable but its contribution to improved CPR management through uptake is unclear (the impacts are likely to appear in the future and beyond the life of the current FMSP). Much of the research concludes with recommendations for future research, practice and policy approaches but the political and institutional constraints to achieving these changes are not fully explored.

The future relevance of this research needs to be considered in relation to the constraints that block its uptake and use and to those conditions (the CPR and associated institutions) that make this knowledge relevant and see it applied.

The current theoretical debate with respect to CPR is turning towards wider issues relating to governance rather than starting conditions or “rules” at the local level. This is, in part, due to the constraints to up-scaling encountered in the past and the pressing need to influence management on a wider scale. Some of the research discussed above outlines the *de facto* and *de jure* management regimes that impinge on CPR and the poor but a better understanding of the discrepancy between intended and actual practice is still required with respect to all CPR management.

Finally, the value of the range of CPR knowledge discussed above is probably best unlocked when the projects are considered together. In future, further livelihood analysis

and the application of tools such as poverty-profiling might help to identify real opportunities for transferring existing technical knowledge to new settings.

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APPENDIX 1: SUMMARY OF FMSP PROJECT CLUSTERS 2 AND 7

1. Introduction

In this appendix the 18 projects which make up FMSP Project Clusters 2 and 7 have been summarised within a framework which attempts to capture the main features of each project with reference to the focus and the design of the project (*ex-ante*), and with reference to the operation and management of CPR (*ex-post*). In turn the completed frameworks have been used as a basis to synthesise the overall findings of the research projects within the context of CPR issues, and the relevance to future fisheries (CPR) management.

2. Outline of the summary framework

Overview of project ;

- (i) Project No. (FMSP reference)
- (ii) Dates: (project duration and timing)
- (iii) Project title: (as per FTR)
- (iv) Lead institution (Main participants and collaborators)
- (v) Project Purpose (as detailed in FTR)
- (vi) Project relevance to programme logframe (as detailed in FTR)
- (vii) Project relevance to CPR (whether CPR was a focus of the project, score 5=very relevant; to score 1: no relevance);
- (viii) Key resources: (identify major fisheries resources involved);
- (ix) Resource types de facto/de jure (identify as private, CPR , club, public; Box 1 in framework)
- (x) Key resource users (main participants and beneficiaries);

CPR issues and context for each project/fishery

1. Importance of CPR to the poor (identify links with particular reference to benefit flows, livelihoods and poverty status);
2. Importance of CPR to wider economy (contribution and role of CPR to the economy of countries/regions concerned in the project);
3. Use-rights of CPR defined (with reference to a typology of use rights – access, withdrawal, management, exclusion and alienation – Box 2 in framework);
4. Constraints to the management and performance of CPR (major factors identified and discussed where possible);
5. Key legal and policy frameworks that govern CPR (the context provided by the legal and policy framework is identified, characterised and analysed where possible);
6. SWOT analysis of CPR contribution to fisheries development (to further highlight the current and future relationship between CPR [fisheries] and development, the strengths, weaknesses, opportunities and threats are identified);

- i. Project number: R5023
- ii. Dates: 1/2/92-30/6/94
- iii. Project title: Potential Yield of small reservoir fisheries in South Asia
- iv. Lead institution: MRAG
- v. Project purpose: to estimate the yield of capture fisheries based on stock enhancement programmes in small reservoirs, and to assess the opportunities for enhancement of fish production through optimum stocking and harvesting strategies.

Project carried out in Thailand, India and China.

- vi. Project relevance to Programme logframe

Not given in FTR

- vii. Project relevance to CPR: 2 – primary focus was stocking of reservoirs but information from Thailand suggests that the impact of this on other CPR needs to be taken into account.

5=very relevant and focus of project; 4=very relevant but not primary focus of project; 3=moderately relevant; 2=little relevance; 1=no relevance

- viii. Key resource(s) (tuna fisheries/hilsa fishery etc) that the project targeted and any secondary resources affected (water courses, other fish stocks)

Thailand: Stocked reservoir fisheries, water, invertebrates, plants

- ix. Resource type defacto/dejure (see box 1):
Thailand: stocked reservoirs are owned by village committees and supported by government (de jure CPR); non-stocked reservoirs are usually de facto CPR

China: stocked reservoirs are owned and managed by the state and contracted out to private companies – de jure private resources

India: stocked and managed by the state which controls use-rights up to and including alienation.

- x. Key resource users (industrial fishing companies/resource poor fishers/donors etc) of the target resources and others likely to have been affected by the project (women, farmers etc)

Thailand and India: small scale fishers

China: private companies, businessmen

In all cases, seed suppliers also a key resource user although not mentioned in the report.

1. Importance of CPR to poor

Thailand: reservoir/ponds very important for local food security with non-stocked ponds being used by local farmers in the lean season – ponds used for a variety of things – watering cattle, collection of wild plants and fishing.

China: no information given

India: minimal – reservoir fishing is only done by a distinct group of nomadic fishermen and effort levels are low.

2. Importance of CPR to wider economy

Thailand: no information given but suspect that the role of small ponds/reservoirs important in maintaining wider national food security.

China: no information given, but suspect that an important part of the regional economy

India: no information given but probably minimal given low effort levels.

3. Use-rights of CPR defined (see Box 2)

Thailand: [use-rights up to and including management definitely] – not clear about exclusion rights. Conflicting uses of ponds are managed through different use rules in different ponds (keeping buffalo/cattle watering separate from household water use, for example).

China: [use rights up to exclusion] state owned resource with private companies extracting resource. State presumably only entity with rights of alienation, private company has rights of exclusion.

India; [use-rights up to withdrawal] access to reservoirs (stocked by the state) is by licence which has a nominal fee and number of licenses is not restricted.

4. constraints to management/performance of CPR

Thailand: stocked water bodies often have rules in place that disrupt other communal uses (6); stocked ponds have their water quality affected which impacts on other CPR users. Potential problem with focusing research for small water bodies on maximising fish production which would be detrimental to other CPR and have little impact on poverty (fish is only a marginal form of survival).

China: none listed

India: none listed

5. key legal/policy frameworks that govern CPR

No mentioned of this at all

6. SWOT ANALYSIS OF CPR CONTRIBUTION TO FISHERIES DEVELOPMENT

Strengths

- potential for increased fish production

Weaknesses

- little knowledge about the management of culture fisheries
- no mentioned but presumably little knowledge of access/use rights also?

Opportunities

- use of ponds for increased fish production in India (currently low effort)

Threats

- research focus on increased stocking in Thailand which would disrupt current uses of ponds/reservoirs

Box 1: resource type

Appropriators are	Excludable	Non-excludable
Appropriation is		
Competitive Rivalry (subtractable)	PRIVATE	COMMON POOL (CPR)
Non-competitive Non-rivalry (nonsubtractable)	CLUB	PUBLIC

CPR = a resource where one person's use subtracts from another's and where it is often necessary (but difficult and costly) to exclude other potential users outside the group from using the resource. The group may be large (all national fishers) or small (fishers from one beach) and may consist of primary stakeholders (ie fishers) and/or secondary stakeholders (ie environmentalists, traders). An open access (OA) resource is defined as one where there are no restrictions on entrants or extraction, no defined group of users and no means of excluding others.

Box 2: typology of use-rights

	Access	Withdrawal	Management	Exclusion	alienation
Owner	X	X	X	X	X
Proprietor	X	X	X	X	
Claimant	X	X	X		
Authorised user	X	X			
Authorised entrant	X				

- i. Project number:R5953
- ii. Dates: 1/3/94-20/4/97
- iii. Project title: Fisheries dynamics of modified floodplains in Southern Asia
- iv. Lead institution: MRAG (Hoggarth and Halls)
- v. Project purpose

To investigate the life history strategies of floodplain river fish – their spatio-temporal growth, reproduction and survival patterns – and the capture strategies of fishermen, to explain the impacts of hydrological modifications of floodplain rivers and make recommendations on the management of floodplain river fisheries.

- vi. Project relevance to Programme logframe

Significant advances have been made on the appropriate resource management strategies for capture fisheries in Asian floodplain river fisheries, particularly on the use of riverine reserves and water body licensing and the links between property rights and fish behaviour patterns. Additional proposals have also been made for the enhancement of floodplain fish catches in modified and unmodified catchments using simple cost-effective methods (from pg 14)

- vii. Project relevance to CPR: 4 (primary focus is fisheries biology and fisher behaviour rather than access issues to the fish per se although these dealt with through discussion of management options)

5=very relevant and focus of project; 4=very relevant but not primary focus of project; 3=moderately relevant; 2=little relevance; 1=no relevance

- viii. Key resource(s) (tuna fisheries/hilsa fishery etc) that the project targeted and any secondary resources affected (water courses, other fish stocks)

Floodplain fisheries within hydrologically modified site (Bangladesh) and unmodified river site (Indonesia).

- ix. Resource type defacto/dejure (see box 1):

B=mixture of de jure open access and de jure CPR with strict set of access rights (leases/licences)

I= de jure CPR with strict access rights (licences)

- x. Key resource users (industrial fishing companies/resource poor fishers/donors etc) of the target resources and others likely to have been affected by the project (women, farmers etc)

Small scale fishers, other water resource users (rice farmers)

1. Importance of CPR to poor

No information given.

2. Importance of CPR to wider economy

Important as a source of employment in Bangladesh and as a source of food in Indonesia (pg 14).

3. Use-rights of CPR defined (see Box 2)

Bangladesh: Access to fisheries is based on leases for the larger more productive water bodies (lease implies rights up to and including exclusion), subsistence fishing is allowed every where and (at the time of the study) river fisheries were fished under license in blocks [this is no longer the case – Liz]. However, report notes (pg 31) that Bangladeshi fishers had far greater freedom of movement between water bodies than in Indonesia.

Indonesia: River fisheries are divided into licensed management units with licences issued for 12 month periods (usually acquired by a financier, group of well-off fishers or a family unit). Unlicensed fishers may fish anywhere during the month of January (pg 27). Licences grant rights up to and including exclusion (pg 110).

4. constraints to management/performance of CPR

Lack of knowledge on the mobility of certain fishes which impacts on the effectiveness of area-based management schemes; lack of data on the real impacts of flood schemes on fish populations/catches (something the project sought to address).

5. key legal/policy frameworks that govern CPR

B= At the time of the project fishermen were not included on sluice gate committees (but see recent changes detailed in project R8210). New Fisheries Management Policy of 1995 saw dramatic change in fisheries policy and the promotion of the concept of the 'genuine' fisher to try and target fishing resources and access to those resources to real fishers (different from Muslim fishers, wealthy business men etc)

I= licensing system has been in place since 1822 (pg 119); original system designed to reduce conflicts between neighbouring but now the system used as a revenue generation exercise with prices rising in those years when more revenue is needed. Licensing system provides rights of access and exclusion but not necessarily within the financial reach of the poorest.

6. SWOT ANALYSIS OF CPR CONTRIBUTION TO FISHERIES DEVELOPMENT

Strengths

Weaknesses

Complexity of system on the floodplains – with interactions of fish migratory routes, action of sluice gates, activity of fishers, licensing scheme – the impact this has on management (Bangladesh).

Lack of information on artisanal fisheries particularly on modified floodplains.

Opportunities

Threats

Newly acquired knowledge on fisher behaviour and fish biology on floodplains (B and I)

Box 1: resource type

Appropriators are	Excludable	Non-excludable
Appropriation is		
Competitive Rivalry (subtractable)	PRIVATE	COMMON POOL (CPR)
Non-competitive Non-rivalry (nonsubtractable)	CLUB	PUBLIC

CPR = a resource where one person's use subtracts from another's and where it is often necessary (but difficult and costly) to exclude other potential users outside the group from using the resource. The group may be large (all national fishers) or small (fishers from one beach) and may consist of primary stakeholders (ie fishers) and/or secondary stakeholders (ie environmentalists, traders). An open access (OA) resource is defined as one where there are no restrictions on entrants or extraction, no defined group of users and no means of excluding others.

Box 2: typology of use-rights

	Access	Withdrawal	Management	Exclusion	alienation
Owner	X	X	X	X	X
Proprietor	X	X	X	X	
Claimant	X	X	X		
Authorised user	X	X			
Authorised entrant	X				

i. Project number: R6436

ii. Dates: 15/3/96-31/7/99

iii. Project title: The performance of customary marine tenure (CMT) in the management of community fisheries resources in Melanesia

iv. Lead institution: Chris Mees, MRAG

v. Project purpose

To describe and evaluate the performance (social equity and ecological sustainability) of a number of extant CMT regimes in Fiji and Vanuatu.

vi. Project relevance to Programme logframe

Optimum sustainable yield from capture fisheries achieved by improved resource management and mechanisms generating conflict between fishers groups and stakeholders understood and management tools for mitigation developed and promoted.

vii. Project relevance to CPR: 5

5=very relevant and focus of project; 4=very relevant but not primary focus of project; 3=moderately relevant; 2=little relevance; 1=no relevance

viii. Key resource(s) (tuna fisheries/hilsa fishery etc) that the project targeted and any secondary resources affected (water courses, other fish stocks)

Marine fisheries in Fiji and Vanuatu

ix. Resource type defacto/dejure (see box 1):

De jure CPR with power to exclude, supported by legislation and constitutions.

x. Key resource users (industrial fishing companies/resource poor fishers/donors etc) of the target resources and others likely to have been affected by the project (women, farmers etc)

Small scale fishers, national and regional fisheries departments

7. Importance of CPR to poor

Marine fisheries are very important to village communities throughout the Pacific and a rapid rise in population and fishing power means the resource needs managing effectively.

V: very small population, 82% of which live in the rural areas. 35% of rural households are engaged in fishing, this % has declined over recent years. Agriculture is a mainstay of the economy.

F: No data

8. Importance of CPR to wider economy

Very important as commercial fisheries increase, particularly on Fiji but because NR based employment is critical to Vanuatu, CPR are important as part of the wider economic strategy.

9. Use-rights of CPR defined (see Box 2)

Customary Marine Tenure (CMT) systems vary but invariably they are tribal/clan based and include use-rights up to and including exclusion. The set of use rights is highly complex and set out in great detail in chapter 2.

V: [rights up to and including exclusion]. There is cooperation between adjacent Community Fishing Rights Areas (CFRAs) and sharing resources is the norm. Marine rights are held at the community level, exclusion of others is relatively easy (although rarely used).

F: [rights up to and including exclusion]. Chiefs issue licences and recoup resource rent – although Chiefs may no longer live in the fishing community. Because there is little restriction on effort there is some concern in the Indo-Fijian community (largely commercial fishers and traders) that the value of their licenses will be reduced by rising effort. As of 1999 proprietary rights to customary fishing areas exist although not clear if proprietary rights also include the right of alienation.

Rights of Indo-fijians are considerably less than those of native Fijians – particularly in terms of rights of management (Fiji country report, pg 119)

10. constraints to management/performance of CPR

Declining fishing population in Vanuatu which is leading to the gradual amalgamation of communities as numbers drop.

A push towards co management could also undermine CMT in some areas if the two systems are not fitted together well.

Declining fish populations in parts of Fiji where access rights are not respected.

Increasingly difficult for traditional decision makers (tribal) to get feedback on their management regimes because of increased amount of off shore fishing (Fiji) which makes it hard for them to modify the regime to meet objectives (biological, social etc).

11. key legal/policy frameworks that govern CPR

Whilst customary rights are supported and enshrined by national legislation and policy there are possibilities for contradictions between the two sets of rights.

V: strong tribal tradition with tribal lands (extending down the to the end of the reef) codified in law in 1983 and marine tenure strictly owned and managed by clans.

1989 constitution states that “custom shall form the basis of ownership” (4); two layers of legislation exist: official national law and custom law – both of which are recognised equally in the courts.

F: 1942 fisheries legislation recognises CMT on the reefs and formal fishing boundaries are recognised in law. In 1999 the Government granted proprietary rights to customary fishing areas

12. SWOT ANALYSIS OF CPR CONTRIBUTION TO FISHERIES DEVELOPMENT

Strengths

- highly developed customary use-rights system (Vanuatu)

Weaknesses

- isolated fishing communities (Vanuatu)
- CMT rarely has a conservation aim and most villages have no capacity for sustainable management which might hinder attempts to re-focus management in this direction.
-inability to control access (and thus effort).

Opportunities

- increased focus on sustainability in customary laws (which are rarely focus on the ecology of the resource).
- that the CMT system and co management can be successfully brought together

Threats

- rising commercialisation of the resource in some parts of Vanuatu
- less interest in younger generation in traditional institutions (Vanuatu)
- tendency for state fisheries managers to emphasise increased production (Vanuatu)
- move towards Co management which could threaten CMT structures.

Box 1: resource type

Appropriators are	Excludable	Non-excludable
Appropriation is		
Competitive Rivalry (subtractable)	PRIVATE	COMMON POOL (CPR)
Non-competitive Non-rivalry (nonsubtractable)	CLUB	PUBLIC

CPR = a resource where one person's use subtracts from another's and where it is often necessary (but difficult and costly) to exclude other potential users outside the group from using the resource. The group may be large (all national fishers) or small (fishers from one beach) and may consist of primary stakeholders (ie fishers) and/or secondary stakeholders (ie environmentalists, traders). An open access (OA) resource is defined as one where there are no restrictions on entrants or extraction, no defined group of users and no means of excluding others.

Box 2: typology of use-rights

	Access	Withdrawal	Management	Exclusion	alienation
Owner	X	X	X	X	X
Proprietor	X	X	X	X	
Claimant	X	X	X		
Authorised user	X	X			
Authorised entrant	X				

- Project number: R7043
- Dates: 19/11/97-1/10/02
- Project title: Selection criteria and co-management guidelines for harvest resources in tropical river fisheries
- Lead institution: MRAG (Dan Hoggarth)
- Project purpose

To identify ecological, social and institutional criteria for selection and beneficial use of harvest reserves in tropical river fisheries, and to develop guidelines for their management. The purpose of the guidelines is the delivery of economic benefits to fishing communities, derived from enhanced recruitment to exploited fish stocks and from improved management of the fisheries.

A secondary goal of the project was to promote the effective use of reserves in Indonesia as a component of an integrated, adaptive co management strategy for flood-plain river fisheries.

- Project relevance to Programme logframe

Not given in FTR

- Project relevance to CPR: 5

5=very relevant and focus of project; 4=very relevant but not primary focus of project; 3=moderately relevant; 2=little relevance; 1=no relevance

- Key resource(s) (tuna fisheries/hilsa fishery etc) that the project targeted and any secondary resources affected (water courses, other fish stocks)

Floodplain river fisheries in 'nature reserves' (deep water channels) in Jambi (J), South Sumatra (SS) and West Kalimantan (WK), Indonesia

'Blackfish' – locally protectable resource (3) which is relatively resident (different from 'whitefish' which are highly mobile.

Reserve is defined as *a spatially defined area of water, managed with any specified set of technical regulations, intended to sustain or increase the potential fish yield available from existing, natural fish stocks, for the benefit of fishers.*

- Resource type defacto/dejure (see box 1):
De facto CPR where exclusion is relatively easily enforceable. Appears to be evidence that 'rules' exist (Appendix 6a, pg 2) refers to local rules made on a particular date but no indication whether these are by-laws or not.

- Key resource users (industrial fishing companies/resource poor fishers/donors etc) of the target resources and others likely to have been affected by the project (women, farmers etc)

Small-scale fishers

1. Importance of CPR to poor

Not discussed in FTR; alluded to in Paper Harvest Reserves in Indonesian River Fisheries as important but not quantified.

2. Importance of CPR to wider economy

Not discussed in FTR. Inference from what information is there, is that reserves boost fish production in specific river sites and thus reduce pressure on CPR elsewhere and also help in achieving goals of poverty reduction.

3. Use-rights of CPR defined (see Box 2)

Project focussed on ‘production reserves’ which are of two types: Harvest Reserve (within fishing areas, with core, buffer and exploitation zone) and Community-based Reserve. The first is managed by the Fisheries Extension Office and the second by the local community. Full description of rules and fines for access and withdrawal rights given in Appendices 6 a, b.

WK: [all rights up to and including exclusion in evidence] reserves are effectively managed by strong traditional institutions which limit gear and seasons, benefits accrue to the community. Access is by lottery and this is considered more equitable than leases (which also operate in some parts). Outsiders may fish with permission, there is little non-compliance. Not clear if these rules are exclusively informal or not.

J [rights up to exclusion lie with fishers], Appendix 6b notes that plenty of local rules are in place which put *de facto* ownership (ie exclusion) in the hands of the community although these are not recognised *de jure*. Outsiders must ask permission to fish from the site from the village head.

SS [rights of management and exclusion lie with the government] management is by the state and is focussed on auctioning of fishing rights and the raising of revenue. Reserves were a top down initiative and rules laid down and enforced by government. Benefits accrue to the area in general (fishers or otherwise).

4. constraints to management/performance of CPR

Strong local management in place but currently at odds legally with the frameworks that managed Indonesia fisheries (which place management firmly in the hands of the state).

Push for decentralisation may override local laws – but also has the ability to strengthen them if co-management can be made to work.

Ability to manage the reserve largely dependent on whether set up by the state or the locals.

5. key legal/policy frameworks that govern CPR

CPR as such do not appear to figure in national legislation or policy frameworks, however, government acts relating to irrigation acknowledge that “the exploitation and maintenance of rivers, as promoted by the planning and evaluation process, must be undertaken for the welfare and general security of the community” (appendix 7, pg 12).

All natural resources are owned by the state under the 1945 constitution and no institution below the level of Regional fisheries management may formulate fisheries management policy although Appendix 7 notes that moves towards bottom up management have been mooted.

“There has been a long established tradition in Indonesian culture for leaders to make decisions through a process of discussion (*musyawarah*) until unanimity (*sepakat*) is achieved. The latter intention is to formulate a solution in a way that ensures everyone is willing to accept the outcome, which is achieved either by altering the details of the proposal or by convincing reluctant members of the desirability of the proposal” (Appendix 7, pg 14). In other words, the means of incorporating state and local management principles technically exists.

Co-management for natural resources in Indonesia is mentioned in the most recent Five-Year National Plan but policy and administrative commitments have not yet been clearly stated. Appendix & (pg 18) notes that the government tends to apply standard rather than tailored solutions to problems. “Communities living in remote locations are also still often considered to be ‘ignorant’ or ‘simple’, rather than local experts on natural resources.” Any hope of incorporating local management of CPR in to state led management is therefore going to be a long process.

6. SWOT ANALYSIS OF CPR CONTRIBUTION TO FISHERIES DEVELOPMENT

Strengths

- Local level management exists albeit outside the purview of government management.

Weaknesses

- lack of experience of government in the strengths of local management capacity

Opportunities

- new drive towards decentralisation and democratisation

Threats

- continued belief that communities are unable to manage their own resources.
 - drive for decentralisation if it is only able to co-habit with locally defined rules.

Box 1: resource type

Appropriators are	Excludable	Non-excludable
Appropriation is		
Competitive Rivalry (subtractable)	PRIVATE	COMMON POOL (CPR)
Non-competitive Non-rivalry (nonsubtractable)	CLUB	PUBLIC

CPR = a resource where one person's use subtracts from another's and where it is often necessary (but difficult and costly) to exclude other potential users outside the group from using the resource. The group may be large (all national fishers) or small (fishers from one beach) and may consist of primary stakeholders (ie fishers) and/or secondary stakeholders (ie environmentalists, traders). An open access (OA) resource is defined as one where there are no restrictions on entrants or extraction, no defined group of users and no means of excluding others.

Box 2: typology of use-rights

	Access	Withdrawal	Management	Exclusion	alienation
Owner	X	X	X	X	X
Proprietor	X	X	X	X	
Claimant	X	X	X		
Authorised user	X	X			
Authorised entrant	X				

- i. Project number: R7042
- ii. Dates: 15/2/98-31/1/01
- iii. Project title: Information systems for co-management of artisanal fisheries
- iv. Lead institution: MRAG (Ashley Halls)
- v. Project purpose: to examine the feasibility of developing a generic (generally applicable) Fisheries Information Management Systems (FIMS) or database to improve the co management and appropriate development of artisanal fisheries.
- vi. Project relevance to Programme logframe

FMSP Purpose 1: development of improved strategies and plans for the management of capture fisheries important to poor people.

- vii. Project relevance to CPR: 4 (main focus was how to collect information and what sort of information was needed to manage fisheries but implications of the project will impact upon CPR)

5=very relevant and focus of project; 4=very relevant but not primary focus of project; 3=moderately relevant; 2=little relevance; 1=no relevance

- viii. Key resource(s) (tuna fisheries/hilsa fishery etc) that the project targeted and any secondary resources affected (water courses, other fish stocks)

Inland fisheries in Bangladesh

Small coastal fisheries in Turks and Caicos Islands (TCI)

Although these two countries used as a test bed for what information needs to be collected rather than the database being specifically designed for these two countries.

- ix. Resource type defacto/dejure (see box 1):

De jure CPR in both cases with complex array of unofficial restrictions operating in Bangladesh where there is also a degree of private ownership on some large waterbodies.

- x. Key resource users (industrial fishing companies/resource poor fishers/donors etc) of the target resources and others likely to have been affected by the project (women, farmers etc)

Small scale fishers in both countries; processing companies in TCI; NGOs in Bangladesh

1. Importance of CPR to poor

(pg 10) artisanal fisheries important to the poor in the developing world with between 14-20 million dependent on those fisheries for their livelihoods and about 1 billion dependent upon them for their source of animal protein.

2. Importance of CPR to wider economy

Not mentioned in FTR but given statement in (1) likely to be very important to wider economy as a back stopping device. Other knowledge indicates CPR in TCI very important source of export revenue – much more so than in Bangladesh.

3. Use-rights of CPR defined (see Box 2)

Long discussion about the concept of spatially defined management (village management areas, catchment management areas and intermediate management areas)– but theoretical rather than based on field work from Bangladesh or TCI. Use-rights in the CPR involved in the project not defined.

The majority of the information needs identified relate to bio-economic data with any data to do with access rights/informal access arrangements being much further down the list of priorities (Chapter 4 pg 86). There is, however, provision in the database to collect information on licences and restrictions (which act as use-rights indicators).

4. constraints to management/performance of CPR

Lack of information on the resource – information that managers need in order to make decisions about access/effort/catch etc.

Acknowledgement that behaviour of fishers (and therefore strategies needed by managers of the resource) is affected by informal institutions and cultural norms (ie by a raft of unspecified access/use conditions for the resource + market conditions).

5. key legal/policy frameworks that govern CPR

Brief discussion on the various policy objectives of a wide range of countries around the world (Chapter 4, pg 53) and Chapter 4 itself is a discussion of the data needs of various levels of management needed for state-owned (ie, presumably non private) stocks – biological, socio-economic needs and what indicators might satisfy those needs. No specific policy/legal framework identified, however.

6. SWOT ANALYSIS OF CPR CONTRIBUTION TO FISHERIES DEVELOPMENT

Strengths

The possibility of developing community negotiated indicators (Chapter 4) so that indicators on more ‘informal’ aspects of CPR management might be incorporated into the database.

Weaknesses

Current lack of reliable information/data on which management decisions can be made

Opportunities

Co-management of CPR would be improved with more data.

Threats

That the failure of the FIMS system to capture information on use-rights adequately will see established rights overridden by new systems for managing the fishery that are ordained by government based on what could be believed to be an ‘infallible’ tool for management.

Box 1: resource type

Appropriators are	Excludable	Non-excludable
Appropriation is		
Competitive Rivalry (subtractable)	PRIVATE	COMMON POOL (CPR)
Non-competitive Non-rivalry (nonsubtractable)	CLUB	PUBLIC

CPR = a resource where one person’s use subtracts from another’s and where it is often necessary (but difficult and costly) to exclude other potential users outside the group from using the resource. The group may be large (all national fishers) or small (fishers from one beach) and may consist of primary stakeholders (ie fishers) and/or secondary stakeholders (ie environmentalists, traders). An open access (OA) resource is defined as one where there are no restrictions on entrants or extraction, no defined group of users and no means of excluding others.

Box 2: typology of use-rights

	Access	Withdrawal	Management	Exclusion	alienation
Owner	X	X	X	X	X
Proprietor	X	X	X	X	
Claimant	X	X	X		
Authorised user	X	X			
Authorised entrant	X				

2. Project number: R7335
3. Dates: 2/1/99-30/6/02
4. Project title: Adaptive learning approaches to fisheries management
5. Lead institution: MRAG, Caroline Garaway
6. Project purpose

To develop and promote adaptive learning approaches to fishery enhancements. Although fishery enhancements have occurred over time, in many isolated communities the opportunities to learn are few and the mutual exchange of information (between communities and community-state) could be improved.

7. Project relevance to Programme logframe

Yields from enhanced fisheries increased by optimising strategies for stocking and harvesting.

8. Project relevance to CPR: 3 (primary focus is adaptive learning techniques and effect of this on fisheries enhancement – which are subject to CPR regime)

5=very relevant and focus of project; 4=very relevant but not primary focus of project; 3=moderately relevant; 2=little relevance; 1=no relevance

9. Key resource(s) (tuna fisheries/hilsa fishery etc) that the project targeted and any secondary resources affected (water courses, other fish stocks)

Inland enhanced fisheries in Lao.

10. Resource type defacto/dejure (see box 1):

De facto CPR

11. Key resource users (industrial fishing companies/resource poor fishers/donors etc) of the target resources and others likely to have been affected by the project (women, farmers etc)

Small-scale fishers, external analysts (fisheries officers)

1. Importance of CPR to poor

Fish is widely considered to be the major source of animal protein for the majority of people in Lao PDR. Subsistence fishing is carried out by almost everyone who has convenient access to water, estimates for consumption in Southern Laos are 17.5kg/household member/year.

2. Importance of CPR to wider economy

Because it is a landlocked country, the inhabitants rely on the inland fishery for all their fishery needs.

3. Use-rights of CPR defined (see Box 2)

Some inland water bodies are managed by newly installed systems, some with traditional systems. By and large, CPR are managed by a defined group of people who have rights up to and including exclusion.

Management is already advanced with most village exercising rights of monitoring, control and enforcement through management committees. There is no individual harvesting, all is done collectively.

4. constraints to management/performance of CPR

Different models for fishing the water body (group fishing, renting, fishing days – see “results of the exploratory baseline study” paper for more details) are in existence. District staff had always considered they group fishing model as the best option but this not necessarily the case and making assumptions about the best mode of management without data or community approval could be damaging.

Management of enhanced waterbodies was heavily focused on how/when to stock rather than on access/withdrawal rights which potentially undermines the nature of the resource and its system of use-rights.

5. key legal/policy frameworks that govern CPR

No reference to this in the FTR.

From project document, “ Results of the exploratory baseline study to investigate the status of community led management of small waterbodies in Southern Lao PDR” section 4.2

Under the laws of Lao PDR, any regulations created by village administrations are fully recognised and the administration is entitled to enforce them. However, it is important to note that whilst such rights exist, leading to systems of common property rather than ‘open access,’ active management of such waterbodies, including enhancement, is still minimal.

6. SWOT ANALYSIS OF CPR CONTRIBUTION TO FISHERIES DEVELOPMENT

Strengths

- existing community interactions for fisheries management
- learning across communities about management options

Weaknesses

- lack of knowledge about enhancements in CPR – particularly why outcomes do not always occurred as planned.
- poor communities do not risk averse enough to attempt significant changes to management without prior knowledge of the outcomes.

Opportunities

- increased benefits from enhanced fisheries

Threats

Box 1: resource type

Appropriators are	Excludable	Non-excludable
Appropriation is		
Competitive Rivalry (subtractable)	PRIVATE	COMMON POOL (CPR)
Non-competitive Non-rivalry (nonsubtractable)	CLUB	PUBLIC

CPR = a resource where one person's use subtracts from another's and where it is often necessary (but difficult and costly) to exclude other potential users outside the group from using the resource. The group may be large (all national fishers) or small (fishers from one beach) and may consist of primary stakeholders (ie fishers) and/or secondary stakeholders (ie environmentalists, traders). An open access (OA) resource is defined as one where there are no restrictions on entrants or extraction, no defined group of users and no means of excluding others.

Box 2: typology of use-rights

	Access	Withdrawal	Management	Exclusion	alienation
Owner	X	X	X	X	X
Proprietor	X	X	X	X	
Claimant	X	X	X		
Authorised user	X	X			
Authorised entrant	X				

- i. Project number: R7336
- ii. Dates: 31/1/99-30/9/01
- iii. Project title: Sustainable livelihoods from fluctuating fisheries
- iv. Lead institution: School of Development Studies, Overseas Development Group, UEA. Eddie Allison and Frank Ellis

v. Project purpose

Purpose: to identify management regimes and development policies appropriate to the delivery of maximum benefits to subsistence and small scale commercial fishers dependent on fish stocks that fluctuate extensively, so that livelihoods may be sustained and improved and poverty in fishing communities reduced.

Project draws on two case studies from Malawi and Indonesia (West Java)

vi. Project relevance to Programme logframe

Goal: Optimum sustainable yield from capture fisheries achieved by improved resource management and mechanisms generating conflict between fishers groups and stakeholders understood and management tools for mitigation developed and promoted.

vii. Project relevance to CPR: 5

5=very relevant and focus of project; 4=very relevant but not primary focus of project; 3=moderately relevant; 2=little relevance; 1=no relevance

viii. Key resource(s) (tuna fisheries/hilsa fishery etc) that the project targeted and any secondary resources affected (water courses, other fish stocks)

Malawi: small pelagic lake fisheries

West Java: pelagic marine fisheries

ix. Resource type defacto/dejure (see box 1):

Malawi: de facto CPR with strong set of use-rights in place, de jure status unknown (ie not stated in report)

West Java: de facto CP regime with de jure CPR use rights in place also.

x. Key resource users (industrial fishing companies/resource poor fishers/donors etc) of the target resources and others likely to have been affected by the project (women, farmers etc)

Malawi: small scale and subsistence fishers in Lake Malawi – many are migrants

West Java: marine pelagic fishers – crew and vessel owners

i. Importance of CPR to poor

Overall, little evidence that CPR overwhelmingly important to poor at the study sites – this because the fishers in Malawi held more assets than the farming community in West Java fishers were likewise not the poorest group.

Malawi: evidence is that fisheries in Lake Malawi are predominantly not a sink for an occupation for those with capital to invest – in so far boat and gears are needed to fish the lake. Migrant fishers are more exposed to risk (because the bulk of their income comes from fisheries) but they are the wealthiest group on the lake (compared to static fishers and farmers)

West Java: fish makes up 25% of animal protein intake of the poor, there are 8 million fishers and dependence on fish accounted for >68% of income in 2 of the 3 study sites and 30% in the third village in the study. Whilst fisheries are very important they are not necessarily a sink (60) but are seen as a viable alternative income option – those on the coast closest to Jakarta which has seen a rise in land values as the wealthy from the capital buy weekend properties on the coast. Those that have sold land have predominantly done so because it seemed like the best option for a future income stream rather than because they went into fishing as the occupation of last resort.

ii. Importance of CPR to wider economy

Malawi: No evidence given in FTR

West Java: fish makes up 2% of the GDP in Indonesia, estimates suggest that MSY (estimated at 6 million MT) has not yet been reached and that 65% of this unfished MSY lies in coastal waters (within 12 nm) and that 50% of this amount is small pelagics (target species of small-scale fishers).

iii. Use-rights of CPR defined (see Box 2)

Malawi: [settled groups exercise rights up to and including exclusion whilst migrants are usually limited to rights of access and withdrawal]. Some migrant groups are banned from owning land in the villages where they settle (they may settle for many years but are always considered as migrants). (48). Beach Village Committees that will set up rules for the beach and fishing are being set up on the assumption that a 'community' exists at the landing sites and that there is no conflict between fishers, traditional village authority (which may have no connection to the fishing economy) and state authority (55). The report suggests that these are dangerous assumptions.

Reciprocal arrangements between migrant fishers and settled community are in evidence – migrants exchange % of the catch for the right to stay in the community (55).

West Java: [rights of withdrawal contracted out in some places, in other places process of decentralisation and local by-laws has led to communities exercising up to rights of exclusion over certain waters. Rights of exclusion also exercised by District Authorities with no regard to the traditional boundaries of fishers]. Use rights for local reefs are contracted out to Javanese and Sulawesi fishers (63) by village government leaders which, report says, very likely does not include any consultation with the community. Centralisation under Suharto and increasing government control of fishing activity may have crowded out informal management systems such as they existed. The process of decentralisation has seen District Authorities given management rights up to 4nm and boundaries have been established for DAs – these now act as de jure use rights, cutting across the de facto rights established between neighbouring villages. DAs have been known to ban visitors and in some places locals have used the presence of by-laws to 'codify' their own desire to exclude visitors (64).

iv. constraints to management/performance of CPR

Increased process of decentralisation in both places a big threat to CPR because a) setting up locally defined management units often cuts across any management currently in place (for example the Beach Village Committees in Malawi) and b) codifying local management of resources often excludes other groups from resources to which they previously had access (DA enforced boundaries in West Java).

The banning and/or constraints placed on migrant or part-time fishers in the belief that they are 'backward' or not recognised as genuine fishers – this severely disrupts livelihood coping strategies – particularly in the context of fluctuating resources where migration has always been the key to survival.

v. key legal/policy frameworks that govern CPR

Malawi: GTZ aid has been involved in revising the management of fisheries since 2002 with the aim of increased CBFM and co management practices. But the two key small pelagic stocks fished on the lake are not mentioned at all in the new policy or in the legislation which means that key CPR stocks have fallen through the net of government attention (21). Report also suggests that the government takes it lead on policy from external funders requirements and is not politically strong enough to defend its own ground.

West Java: Government policy is a drive towards decentralisation and increased fisheries production. The Autonomy law 22/1999 gives district authorities rights up to 4nm, the province manages waters up to 12nm and the state thereafter. There are various technical rules in place in these near shore waters but no provision for fishers that cross DA boundaries (64). But, report also points out that 80% of the Min. of Marine Affairs and Fisheries budget is allocated to the district level so there is a good chance of improvement for small-scale fishers.

vi. SWOT ANALYSIS OF CPR CONTRIBUTION TO FISHERIES DEVELOPMENT

Strengths

- CPR not necessarily a sink for labour and thus not at risk of large influx of effort
- there is no one group highly dependent on the resource – migrants in Malawi are, but they have more financial security than other groups

Opportunities

- Large amounts of government money targeted at coastal fisheries (West Java)
- focussing on what fishers have (flexibility, coping strategies) rather than focussing on what they lack (access to credit, technology etc) – provided the government is prepared to accept the way of seeing fisheries

Weaknesses

- lack of knowledge on fluctuating fisheries and how fishers adapt to this and thus *how management needs to* reflect the coping strategies of fishers.

Threats

- introduction of CBFM in an inappropriate fashion (Malawi) where existing village management structure has no link to fishing and yet is co-opted into the new government plan.
- there is a need to ensure that increased funding into the fisheries sector does not create a dependence that does not exist at the moment (West Java)

Box 1: resource type

Appropriators are	Excludable	Non-excludable
Appropriation is		
Competitive Rivalry (subtractable)	PRIVATE	COMMON POOL (CPR)
Non-competitive Non-rivalry (nonsubtractable)	CLUB	PUBLIC

CPR = a resource where one person's use subtracts from another's and where it is often necessary (but difficult and costly) to exclude other potential users outside the group from using the resource. The group

may be large (all national fishers) or small (fishers from one beach) and may consist of primary stakeholders (ie fishers) and/or secondary stakeholders (ie environmentalists, traders). An open access (OA) resource is defined as one where there are no restrictions on entrants or extraction, no defined group of users and no means of excluding others.

Box 2: typology of use-rights

	Access	Withdrawal	Management	Exclusion	alienation
Owner	X	X	X	X	X
Proprietor	X	X	X	X	
Claimant	X	X	X		
Authorised user	X	X			
Authorised entrant	X				

3. Project number: R7334
4. Dates: January 1999-March 2002
5. Project title: The Management of Conflict in Tropical Fisheries
6. Lead institution: CEMARE
7. Project purpose: To better understand how change can lead to conflict in tropical fisheries and impact this has on resource management and development objectives.

Given the inherent problems with CPR (problems with excludability, maintaining access) conflict is usually endemic in such systems and the project aimed to improve management of CPR (although this aim never explicitly named) by improving the way conflicts are managed

8. Project relevance to Programme logframe

Contributes to the DFID RNRRS goal of “enhancing productivity and productive potential of the land/water interface through improved management of aquatic resources.

Contributes to the FMSP purpose 1: Optimum sustainable yield from capture fisheries achieved by improved resource management and mechanisms generating conflict between fishers groups and stakeholders understood and management tools for mitigation developed and promoted.

Also contributes to OVI output 3.1: Access to capture and enhancement fisheries by the poor understood and consensus building methodologies encapsulated within at least 2 adaptive capture fisheries projects by 2005. Access issues specific to enhanced fisheries investigated for at least one geographic target by 2005

9. Project relevance to CPR: 5

5=very relevant and focus of project; 4=very relevant but not primary focus of project; 3=moderately relevant; 2=little relevance; 1=no relevance

10. Key resource(s) (tuna fisheries/hilsa fishery etc) that the project targeted and any secondary resources affected (water courses, other fish stocks)

Project conducted in 3 countries:

Ghana: coastal pelagic and demersal fisheries

Bangladesh: inland floodplain and beel fisheries (water courses also affected)

Turks and Caicos Islands (TCI): coastal lobster and conch dive fishery (wider marine environment also affected)

11. Resource type defacto/dejure (see box 1):

All de facto CPR but de jure OA with the exception of some Bangladeshi beel fisheries where process of privatization is underway

12. Key resource users (industrial fishing companies/resource poor fishers/donors etc) of the target resources and others likely to have been affected by the project (women, farmers etc)

Canoe fishers in Ghana (fishing for food and income)

Resource poor and largely subsistence fishers in Bangladesh (small scale farmers also affected); local political actors/strongmen, NGOs

Small scale fishers in TCI (tourist industry also affected)

1. Importance of CPR to poor

Ghana: fish is a very important part of the livelihood strategy, it makes up 65% of the average daily protein requirement and the sector employs 2.4% of the EAP

Bangladesh: Fish makes up around 50% of the average daily protein requirement fish and other aquatic resource very important to the lives of those living on the floodplain (approx. 74% of the total population) particularly given that access to CPR are very important to the landless (50% of the floodplain population are functionally landless). Water is also a key CPR in Bangladesh and all issues to do with floodplain fisheries also impact upon rice farming, irrigation, drinking water, flood defences.

TCI: very few 'poor' in TCI although CPR are a major source of income to those that do fish – few alternative sources of employment on very small islands. On one island in particular in the group and estimated 85% of the EAP are dependent on fishing.

2. Importance of CPR to wider economy

Ghana: coastal artisanal (canoe) fishery that were the target group of the project are not exported – except through informal trading routes in Cote d'Ivoire and Togo by fishers living by the border – and so these CPR have little importance to the wider economy. Some coastal communities are more dependent on fisheries than others – so CPR in Western Region (where alternative employment is minimal) and Central Region (with a large population of fishers) hold more importance to the wider regional economy than in other places.

Bangladesh: CPR resources on the flood plain are not exported or transported far within the country, thus of minimal importance themselves to the wider economy. But locally, very important source of nutrition and income and this thus impacts upon the wider economy.

For both Bangladesh and Ghana, in so far as CPR are an important factor in livelihood strategies the health of CPR is important to wider economy because they potentially prevent an exodus of people out of fishing into other occupations.

TCI: Very important to the wider economy because conch and lobster exports are a major contributor to export revenue.

3. Use-rights of CPR defined (see Box 2)

Ghana: anyone has access to CPR, although by custom those not from the village must seek permission on the Chief or Chief Fisherman (CF) in order to fish from and land to the beach in question. Once permission is granted, fishers have the right of access and withdrawal. Only those fishers who are members of the community have input to the management process (and then through the Chief Fisherman and his council). The Chief Fisherman operates rights of exclusion (although few fishers are ever denied permission to fish, certain gear are banned), there are no rights of alienation. This set of use-rights runs parallel to the state defined use-rights which declare all coastal waters as Open Access with rules in place to govern where gears may operate. In general, the community based system of rights takes precedence over the state rules. Some evidence to suggest that CPR are an important backstopping device for local livelihoods but not quantifiable.

Bangladesh: The floodplain (temporary waters that appear after the monsoon) are open access – there are no rights of exclusion, everyone has the right of access and withdrawal. Management rights are held by the state. However, in practice, local power groups do exercise rights of exclusion and alienation over particularly productive parts of the floodplain. These rights are maintained through coercion and violence. Beel fisheries (permanent fisheries in depression that may be joined to the wider floodplain after the monsoon) were traditionally operated as CPR but in the past 30 years increasing numbers of them have been operated under lease – the lease is sold at auction to the highest bidder (mechanisms are in place to ensure that leases only go to fishers but these are frequently flouted). The lease enables the holder to exclude others; the lease does not bestow rights of alienation. Some evidence that fisheries are an occupation of last resort for the very poorest (shallow waters require very simple, cheap gear)

TCI: fishery is managed as a CPR – there are restrictions on the nationality of the fisher (fishery reserved for nationals) and a certain limit on licences and on catch. No evidence that fishing is an occupation of last resort although an important part of a SL in some parts of the islands.

4. constraints to management/performance of CPR

Ghana: coastal fisheries generally accepted as being over capitalised and over fished. Whilst the CF retains the right to exclude new entrants and limit withdrawal these rights are rarely exercised. The rate of expansion in the coastal canoe fishery has far exceeded the ability of the CF to manage CPR sustainably. Traditional and modern systems work well together and recent introduction of World Bank funded Community Based Fisheries Management Programme will see traditional roles in CPR management strengthen.

Bangladesh: ability of the poorest/least powerful to exercise and maintain their rights to CPR very limited due to actions of powerful elites that seek to extract resource rent from CPR by forcibly limiting access. Whilst the ability to exclude others is a key feature of CPR, in Bangladesh those excluding others are rarely dependent upon the resource, are not local to that resource and exclusion is not done as 'collective action' by the stakeholders. Beel fisheries, which were formally CPR have been gradually privatized through the lease system. In many cases outside financial interests hold the lease (the cost being prohibitive to poor fishers) and then sub-lease the fishery back to the local fishers – whilst this confers a degree of security to them over the beel (they can exclude others) the profits from the venture are not retained by the poorest. In some areas NGOs have been working with local fishers to help them secure leases to waterbodies and thus ensure that CPR (although managed under a 'formal' rather than 'commons' regime – see below) continue to supply a stream of benefits to poor fishers.

TCI: Neither lobster nor conch fishery is overfished but the introduction of a wide range of MPAs to protect the marine environment and historical artefacts may constrain some CPR – although by and large fishing grounds and historic/tourist sites do not converge. Overall, few constraints to management/performance identified.

5. key legal/policy frameworks that govern CPR

Ghana: national policy and legal frameworks recognise and support the open access nature of the coastal fisheries (with caveats about inshore waters being reserved for canoes and certain gears banned) but the role of Chiefs/Chief Fishermen (CF) within the governance of coastal communities is also recognised. With the recent introduction of the latest fisheries law, the existence and status of the Community Based Fisheries Management Committees (made up of key stakeholders, the CF, members of the District Assembly) has been recognised and supported which bolsters the frameworks that will support the existence of CPR in the coastal region. However, until such time as state endorsed limits are placed on catch and effort in coastal waters, the sustainability of the CPR is under threat.

Bangladesh: Policy frameworks are often overly ambitious in their objectives and the legal process lags behind – the result being that the legal framework rarely supports policy initiatives. Underlying all this is the fact that local (informal) power networks often undermine the good intentions of policy (which clearly states that the poor should be the focus of fisheries development) and the legal framework that is in place is widely and openly flouted. The policy framework, whilst evolving, is still heavily geared towards increased production rather than addressed access and equity issues on CPR. Whilst the open access nature of the floodplain is recognised in law, it fails to account for the local institutions that have governed access/withdrawal rights on certain parts of the floodplain (specifically those that are truly local, equitable and participatory in nature) and thus effectively undermines local initiatives to manage CPR in a sustainable fashion.

TCI: equal access/withdrawal rights are recognised in law and the policy context strives to ensure that all belongers (locals) have priority access over aquatic resources and also recognises the importance of these resources to the national economy and the need to protect the marine environment (for other the fishing industry and the tourist industry).

6. SWOT ANALYSIS OF CPR CONTRIBUTION TO FISHERIES DEVELOPMENT

Strengths

- strong traditional institutions in Ghana
- lack of conflict in small islands (Turks and Caicos)

Opportunities

- introduction of co management in Bangladesh to empower fishers
- introduction of co management in Ghana to bolster institutions already there

Weaknesses

- lack of effective governance (Bangladesh)
- inability to restrict effort (Ghana)

Threats

- declining resource base
- lack of knowledge of (informal) institutions operating
- failure of government structures to acknowledge role of institutions in fisheries management

Box 1: resource type

Appropriators are	Excludable	Non-excludable
Appropriation is		
Competitive Rivalry (subtractable)	PRIVATE	COMMON POOL (CPR)
Non-competitive Non-rivalry (nonsubtractable)	CLUB	PUBLIC

CPR = a resource where one person's use subtracts from another's and where it is often necessary (but difficult and costly) to exclude other potential users outside the group from using the resource. The group may be large (all national fishers) or small (fishers from one beach) and may consist of primary stakeholders (ie fishers) and/or secondary stakeholders (ie environmentalists, traders). An open access (OA) resource is defined as one where there are no restrictions on entrants or extraction, no defined group of users and no means of excluding others.

Box 2: typology of use-rights

	Access	Withdrawal	Management	Exclusion	alienation
Owner	X	X	X	X	X
Proprietor	X	X	X	X	
Claimant	X	X	X		
Authorised user	X	X			
Authorised entrant	X				

- i. Project number: R7917
- ii. Dates: 1/10/00-30/9/03
- iii. Project title: Self recruiting species in aquaculture – their role in sustainable livelihoods
- iv. Lead institution: University of Stirling (James Muir)
- v. Project purpose: to characterise the role of self-recruiting species in different farmer managed aquatic systems, and to develop management approaches that enhance the production of, and access to, such resources by the poor.
- vi. Project relevance to Programme logframe

Relevance is to AFGRP output 3: improved culture and enhancement systems based on natural and human resource relationships and their effective use of productive inputs (bloodstock, see, nutrients) in target regions; and to FMSP output 2 management tools and strategies for marine freshwater capture and enhancement fisheries that are most likely to support improved livelihood outcomes of the poor developed and promoted.

vii. Project relevance to CPRs:5

viii.

5=very relevant and focus of project; 4=very relevant but not primary focus of project; 3=moderately relevant; 2=little relevance; 1=no relevance

ix. **Key resource(s)** (tuna fisheries/hilsa fishery etc) that the project targeted and any secondary resources affected (water courses, other fish stocks)

Farmer managed systems such as ponds and rice-fields – SRS are those can be successfully managed without regular stocking. Because the majority of the study sites were in areas that flood, the resource (fish) changes from private to CPR as it moves in/out of the ponds.

India: also forestry

B: water resources

x. Resource type defacto/dejure (see box 1):

De jure private during dry season, de facto CPR during the flood (where fish are moving out of/in to ponds, canals and the floodplain).

De jure private where there is no movement to the floodplain (this the case of most of the waterbodies studied in Vietnam).

xi. Key resource users (industrial fishing companies/resource poor fishers/donors etc) of the target resources and others likely to have been affected by the project (women, farmers etc)

Small scale fish harvesters, rice/fish farmers

Importance of CPR to poor

Very important to livelihoods in all study countries: Cambodia, Thailand, Vietnam, Bangladesh and West Bengal.

T: rural populations are more dependent on wild caught stocks than aquaculture (ie depend on CPR) and they can do this because wild stocks still abundant.

V: wild and culture fisheries of equal importance but wild fisheries are the target of the poor. Most FMAS (fisher managed aquatic systems) did not flood.

I: strong reliance on community water bodies and few privately owned ponds (pg 24)

Importance of CPR to wider economy

C: agriculture is the main stay of the economy with 84% of the population living in rural areas and $\frac{3}{4}$ of the country's EAP involved in agriculture. Fishing and farming are practiced by 75% of the poor (pg 13). Presumably therefore CPR provide a useful backstop to a predominately rice based farming system.

I: project was based in West Bengal where community forestry offers significant labour opportunities and resources

B: in NW of the country with poor soils and shorter flooding season, drought is a problem (CPR water). Community resources have been privatised thus farmer managed systems are of increasing importance to the wider generation of economic benefits. Farmer managed systems are merged into the floodplain during the flood.

T: project site in NE where poverty levels high and high dependence on agriculture – which supplies 1/3 of the country's needs.

Use-rights of CPR defined (see Box 2)

Not much evidence presented on the use-rights of these resources except:

Evidence that some farmers may use brush-piles to protect fish in high productive areas (pg 42),

Also evidence from SE Asia that catch rules are employed but these rules not defined (pg 45).

Local Resource User Groups (LRUG) were mooted as a suggestion by the project to improve management but there were concerns about the impact of exclusion on those outside the group but within the wider community (pg 47). But interest in forming such groups was high amongst those that were not currently members. The LRUG were set up on a trial basis in a number of the study sites to test the hypothesis that joint management of water and living aquatic resources within tracts of interconnected FMAS may allow for increased benefits over and above those achievable within each separate FMAS in the absence of cooperation. (pg 19)

constraints to management/performance of CPR

Membership rules of LRUG which can both exclude others but provide a sense of collective action which is beneficial to FMAS to those already members (49)

Potentially the lack of information or management knowledge on the interaction between SRS and floodplain fisheries – although the project has largely addressed these issues (although still has to ensure uptake of information).

key legal/policy frameworks that govern CPR

No information given in FTR except:

Vietnam: local government would help with setting these up and adjust rules on taxation.

No other appendices immediately available – this might be a good point to follow up on.

SWOT ANALYSIS OF CPR CONTRIBUTION TO FISHERIES DEVELOPMENT

Strengths

Strong tradition of SRS culture in many SE Asian countries and the potential for these to be improved with knowledge about feeding, protection, etc.

Opportunities

The use of LRUG to co-manage resources.

Weaknesses

Lack of information on the interactions between SRS and floodplain resources.

Lack of recognition of the importance of other AR to livelihoods of the poor (frogs, snails etc).

Threats

Possibly the inappropriate setting up of LRUG causing conflict?

Box 1: resource type

Appropriators are

Excludable

Non-excludable

Appropriation is

Competitive Rivalry (subtractable) PRIVATE COMMON POOL (CPR)

Non-competitive Non-rivalry (nonsubtractable) CLUB PUBLIC

CPR = a resource where one person's use subtracts from another's and where it is often necessary (but difficult and costly) to exclude other potential users outside the group from using the resource. The group may be large (all national fishers) or small (fishers from one beach) and may consist of primary stakeholders (ie fishers) and/or secondary stakeholders (ie environmentalists, traders). An open access (OA) resource is defined as one where there are no restrictions on entrants or extraction, no defined group of users and no means of excluding others.

Box 2: typology of use-rights

	Access	Withdrawal	Management	Exclusion	alienation
Owner	X	X	X	X	X
Proprietor	X	X	X	X	
Claimant	X	X	X		
Authorised user	X	X			
Authorised entrant	X				

i. Project number: R8118

ii. Dates: Feb 2002-Jan 2003

iii. Project title:

Understanding livelihoods dependent on inland fisheries in Bangladesh and South East Asia

iv. Lead institution: *P Dixon, Durham, P Sultana, World fish, Ashley, MRAG*

v. Project purpose

Purpose: Description of livelihoods of those dependent on fisheries in Bangladesh and SE Asia (Cambodia, Lao, Vietnam)

Project consisted of detailed case studies from each country; FTR is the synthesis report from these.

vi. Project relevance to Programme logframe

Not mentioned in FTR

vii. Project relevance to CPR: 5

5=very relevant and focus of project; 4=very relevant but not primary focus of project; 3=moderately relevant; 2=little relevance; 1=no relevance

viii. Key resource(s) (tuna fisheries/hilsa fishery etc) that the project targeted and any secondary resources affected (water courses, other fish stocks)

Bangladesh: inland fisheries, water, living aquatic resources

Cambodia: inland fisheries, forests, living aquatic resources

Lao: inland fisheries, forests, living aquatic resources

Vietnam: inland fisheries, forests, living aquatic resources

ix. Resource type defacto/dejure (see box 1):

All are *de jure* OA resources with varying degrees of CP regimes operating at the local level – some controlled by local small scale fishers, other by powerful interest groups. Enhanced fisheries are generally privately owned through a lease system for a discrete period of time.

x. Key resource users (industrial fishing companies/resource poor fishers/donors etc) of the target resources and others likely to have been affected by the project (women, farmers etc)

Small scale fishers, small-scale farmers and swiddenists (dry rice/forest crop rotation in hills in Lao).

1. Importance of CPR to poor

Very important as a backstopping device in all countries (12) for fisheries, NTFP (non timber forest products) (37) and living aquatic resources (snails, frogs, wild vegetables) (67).

Bangladesh: 90% of the population lives in rural areas and 40% of these are extremely poor (73). 90 million make a living from the floodplain and half of these are functionally landless. Agricultural land is severely constrained and high pressure on CPR also (26). Fish make up 63% of animal protein requirements in the diet.

Cambodia: 90% of the population live in rural areas. 40% of entire population is below poverty line, access to land and CPR is diminishing (27). The poor have to rely on foraging and CPR resources to survive.

Lao: 17% of population very poor (below the food poverty line) and 20% moderately poor. Rice, animal husbandry and fishing are the most important activities, in that order. $\frac{1}{4}$ of all fish catch is sold with $\frac{3}{4}$ being used for subsistence by the household. 77% of the population live in rural areas. Described as the only truly agrarian country left in Asia thus role of natural resources in livelihood strategies very important.

Vietnam: 50% of population below the food poverty line and 25% below the poverty line. No data given on dependence of CPR in Vietnam.

2. Importance of CPR to wider economy

CPR act as a sink for labour during lean periods and economic downturns. Fish and forest products also play significant role in all countries in employment, local poverty reduction and national export economy for a number of the countries.

Bangladesh: inland fisheries contribute 38% to national fish production and 63% of this is from the floodplains (61) 10% of the entire population dependent on fisheries, 73% of these are part time fishers and 70% of rural population engaged in subsistence fishing.

Cambodia: fishing contributes 8-10% of GDP

Lao: agriculture and fisheries make up 50% of GDP; wood products are a significant export product (51)

Vietnam: 3% of GDP from fishing; capture potential is limited for growth in aquaculture fisheries is high.

3. Use-rights of CPR defined (see Box 2)

For all countries, in the absence of effective centralised management of the resource informal management has emerged but as the value of the fishery rises so the action of rent seeking elites rises and any rights gained through informal institutions rapidly diminishes (143). Lao is the only country with widespread examples of communities exercising use-rights through to exclusion, although in this regard Tonle Sap is mentioned too in passing. Recognised across all case studies that there is a need to tailor use-rights to biological knowledge about the impact of effort on stocks (so far, little information on this – pg 135). The implication being that use-rights are currently determined (by the state) based on weak data and thus the outcome (improved fish stocks) might not be realised.

Lao: [local communities able to exercise rights up to and including exclusion although where the value of the catch is potentially high, these rights diminish down to withdrawal rights only]. Wild fish catch from rice field is an important part of livelihood strategies and is “unregulated and open” (presumably this means it is OA?). Local communities impose harvest restrictions on fish in deep pools in rivers but these are difficult to defend from outsiders (136).

Bangladesh: [very few able to exercise more than withdrawal rights in most CPR fisheries]. Poor Hindus often lose out to majority landowning Muslims (139); there are real legal problems over the ownership of floodwaters above private land (land is private, all floodwaters above it are *de jure* open access) where the wealthy landowner often illegally appropriates floodplain resources making them *de facto* private (139). Little or no means of enforcing access and withdrawal rights on the floodplain (144). Use rights for beels are auctioned off and whilst auctions are supposed to be restricted to genuine fishers, this is rarely the case (159)

Cambodia: [fishing rights – up to and including exclusion – granted to large scale fishing lots allocated by auction. Small scale (subsistence) fishers are able to fish anywhere except fishing lots in the open season] Tonle Sap – use rights are decided by community (160). This is the only example given in the case study.

Vietnam: no use-rights listed by evidence from the case study suggested that access was not perceived as a problem.

4. constraints to management/performance of CPR

The **rapid expanse of aquaculture activities** in (particular) Bangladesh and Vietnam has seen previous CPR water resource privatised (8). **Agricultural expansion** has also impacted on the availability of CPR – particularly in Bangladesh where agricultural land is at a premium and Vietnam which is rapidly expanding capacity of the rice industry (11). The Cambodian forest is under particular threat from loggers – the “flooded forest” has traditionally been a source of foraged foods, fibres and materials for the poor (90).

Inadequate legal structures that don't acknowledge advances in biological knowledge (ie the importance of CPR from an ecological point of view – particularly the role of Swiddenist in Lao; the lack of biological evidence that small scale part time fishers are impacting upon fish stocks on floodplains).

Government policy that has emphasised managerial governance which seeks to expand volume and return to fisheries to the exclusion of the livelihood attributes of fisheries and other marginal CPR (16)

Declining wild food resources in Lao due to **chemical inputs** to the agricultural industry (the push to boost rice production, pg 91) – particularly the decline in wild vegetables.

Technical/infrastructure elements in Bangladesh and Vietnam in particular (flood defences); hydro electric dams in Lao (these are a huge source of income, 119) and the downstream effects on Cambodia of large scale hydro schemes in other countries (119). These large schemes that alter water courses impact upon the breeding cycles and spread of fishes onto the floodplain.

5. key legal/policy frameworks that govern CPR

Overall: little recognition of traditional rights of artisanal fishers/farmers and still a belief that ‘unlegislated’ natural resource use is destructive (eg swiddenist in Lao, 55)). This topic was only dealt with in the conclusions and evidence presented was patchy. Lao has the best example of locally defined rules that are in place and work.

Bangladesh: There has been a policy shift since 1996 from national food security (grow more fish) to employment creation (redistribution of resources and access to resources). This policy encouraged the ‘privatisation’ of beel fisheries as an attempt to protect poor fishers access to resources but in fact poor can’t afford leases and so these are owned by the wealthy elite. CBFM programme at a number of beels aims to promote the use-rights (management, exclusion) of fishers local to the resources.

Cambodia: There is little effective government per se in rural areas which has seen the government, military and elites engage in asset stripping of CPR (49) but, there is a two pronged government move towards equitable growth in agriculture and empowerment of small scale fishers/farmers (53) which hopes to address this problem. Forestry concessions (for logging rights) needs overhauling (27) to prevent the rapid deforestation of areas that are traditional CPR. There is a move away from fisheries concessions (auctioning of fishing rights) to CBFM programme but there is a fear that this will attract migrants in from other areas of the country and thus put more pressure on CPR (162). By early 2001 50% of fishing lots have been released to 200 communities and are governed under co-management principles with local authorities for locally generated benefits. This is backed up by revised legislation but there is also a move to restrict fishing operation size on parts of the floodplain to family sized operations which will adversely impact upon larger fishing operations (140). The report fears that without a framework of support at the local level these co-managed CPR will become open access (146).

Lao: Government policy heavily focused on low land irrigated rice production to the exclusion of all else to meet national food security targets (91). Land is managed by the household, not the community. Integrated Floodplain management has been mooted in the region but no evidence that this is in place yet (123). Local customary rules largely prevail and DoF activity is largely restricted to aquaculture and culture enhanced fisheries. 52% of the villages surveyed said they had rules in place that govern fisheries, the system is under pressure from increased fish marketing (rising value of catch) but is holding up well (147). The devolved government structure has granted de facto autonomy to the regions but this also means that a lack of resources to fund development or enforce rules (161)

Vietnam: Hunger Eradication and Poverty Reduction (HEPR) is in place (141) but little or no information on numbers of activities of subsistence/wild fishers or wild resources so little chance at the moment that the poor and those dependent on capture fisheries will be mainstreamed into government policy. The process of decentralisation (more power to local peoples) and remnants of command economies (where the centre dictates production) do not mix well and bode ill for CPR (142) as local needs are overridden by central government plans.

6. SWOT ANALYSIS OF CPR CONTRIBUTION TO FISHERIES DEVELOPMENT

Strengths

- Village identity and social capital is high, key factors in successful management of CPR (Cambodia, Lao)
- Government moves to limit fishing operations (effort) to protect stocks although the consequences of this might be adverse (Cambodia)
- Access was not considered to be a problem for any of the fishers interviewed in the case studies – poverty was the biggest problem they felt they faced.

Opportunities

- CBFM programmes that provide support to local communities (Bangladesh, Cambodia)
- a rise in irrigated paddy could be good in that it provides economic and health benefits to rural populations (benefits might outweigh loss to aquatic resources) (106) and a rise in local income could lead to a bigger market for fish products (166)
- increased aquaculture could reduce pressure on CPR (126)

Weaknesses

- inability of the poorest to withstand rent seeking
- poor data sets on fishers and fisheries on the floodplain (68)
- lack of legal/policy frameworks to protect fishers and CPRS
- lack of data on LAR which form a critical part of livelihoods strategies in SE Asia

Threats

- Privatisation of resources (12) albeit through programmes that seek to address access problems.
- hydro schemes and flood defences (Bangladesh and Vietnam)
- the loss of flooded forest in Cambodia (109)
- overfishing – although limited data to prove/disprove this

Box 1: resource type

Appropriators are	Excludable	Non-excludable
Appropriation is		
Competitive Rivalry (subtractable)	PRIVATE	COMMON POOL (CPR)
Non-competitive Non-rivalry (nonsubtractable)	CLUB	PUBLIC

CPR = a resource where one person's use subtracts from another's and where it is often necessary (but difficult and costly) to exclude other potential users outside the group from using the resource. The group may be large (all national fishers) or small (fishers from one beach) and may consist of primary stakeholders (ie fishers) and/or secondary stakeholders (ie environmentalists, traders). An open access (OA) resource is defined as one where there are no restrictions on entrants or extraction, no defined group of users and no means of excluding others.

Box 2: typology of use-rights

	Access	Withdrawal	Management	Exclusion	alienation
Owner	X	X	X	X	X
Proprietor	X	X	X	X	
Claimant	X	X	X		
Authorised user	X	X			
Authorised entrant	X				

- i. Project number: R8196
- ii. Dates: 1/9/02-31/3/03
- iii. Project title: Understanding Fisheries Associated Livelihoods and the Constraints to their Development in Kenya and Tanzania
- iv. Lead institution: MRAG/FANRM (T)/MKK (K)
- v. Project purpose: to develop a better understanding of the fisheries dependent livelihoods and identify the nature and sources of constraints to their development, so as to recommend measures for improving the livelihoods of the fisheries dependent communities in Kenya and Tanzania.
- vi. Project relevance to Programme logframe

Not stated.

- vii. Project relevance to CPRs:5

5=very relevant and focus of project; 4=very relevant but not primary focus of project; 3=moderately relevant; 2=little relevance; 1=no relevance

- viii. **Key resource(s)** (tuna fisheries/hilsa fishery etc) that the project targeted and any secondary resources affected (water courses, other fish stocks)

Coastal fisheries (finfish, crustaceae, molluscs) in Kenya and Tanzania; seaweed in Tanzania.

- ix. **Resource type defacto/dejure** (see box 1):

Not specified – presume that in all cases fisheries are de jure CPR with no other restrictions effect de facto by informal institutions.

- x. **Key resource users** (industrial fishing companies/resource poor fishers/donors etc) of the target resources and others likely to have been affected by the project (women, farmers etc)

Fishers, fish fryers (women), NGOs, stakeholders (BMU, Village Environment Management Committees etc).

1. Importance of CPR to poor

Fishing as a whole contributes to the livelihoods of a large percentage of the populations in both countries (pg 2). Coastal populations in Tanzania and Kenya are more likely to be poor than those in other areas although fishing populations in Tanzania are likely to be better off than farming groups (in terms of income – pg 15).

Very little data to indicate importance of CPR (fisheries) yet surveys put fishing as either primary or secondary activity in all villages visited with all but one of the six villages being highly or very highly dependent on fisheries resources.

Coastal people represent 13% of population of Tanzania and 9% of that of Kenya; on average 68% of households in Tanzania and 43% of those in Kenya depend on fisheries related activities for their livelihoods. Fisheries dependent populations are poor in both countries and there is little opportunity to move out to other occupations (more scope for this in urban areas and inland).

2. Importance of CPR to wider economy

Tanzania: ranks in the top 10 fisheries nations in Africa in terms of total capture fisheries production. The fisheries resource contributes 2.9% of the country's GDP through Nile Perch fillets, shellfish (shrimps and lobsters) and crabs which are important export products bringing in 10% of the nations foreign exchange earnings each year. As of 2001 to the present Tanzania is a net exporter of fish products. The marine fisheries directly employ about 19,000 full-time fishers thus a stable supply of fish is considered important in the battle against poverty (Annex 1.1, pg 6).

Kenya: marine fisheries contribute only 6% of total fish production in the country (the rest coming from Lakes) so of marginal importance to wider economy (and hence have commanded far less attention from policy makers and budgets). Fishing described as an occupation of last resort (Annex. 1.2, pg 34).

3. Use-rights of CPR defined (see Box 2)

Tanzania: there are Marine parks in place along the coast (no fishing allowed) which are administered by the state and zoning in place for prawn fishing. No further mention of use-rights is given in Annex 1.1 which describes management of marine resources in Tanzania.

Body of FTR describes access as easy or very easy in 5/6 of the villages in the survey (however access not defined).

No informal management systems in place in either country – presume therefore that resources are Common Pool with users having only Access and withdrawal rights (government holding management rights and upwards).

4. constraints to management/performance of CPR

Traditional management systems have all but disappeared in all the sites visited (pg 15); lack of coordination between the management institutions for the CPR (including fisheries Departments/Divisions, Research Institutes, Wildlife and Environmental organisations, international donors, NGOs) (pg 15). Decentralisation processes have begun but are moving slowly and lack financial support (BMU etc are an example of decentralisation). Some evidence that fisheries are overexploited – declining catch and fish sizes (although lack of data makes this hard to prove).

Other constraints identified were (pg 21): illegal fishing, coral mining for lime making (another significant activity which relies upon a CPR – coral), habitat pollution and degradation. Chief problem with these activities is that they impact upon the regeneration of the fisheries resource.

Fishers identified: lack of access to capital (which forces them to use illegal gears and confines them close to shore – there is evidence that offshore fisheries resources are more abundant than inshore stocks); lack of knowledge of modern fishing skills to improve their catches; lack of alternative livelihood options outside fishing.

5. key legal/policy frameworks that govern CPR

Tanzania: Government makes policy which is then implemented indirectly through municipal/district councils (Annex 1.1, pg 47) these in turn work with the committees set up at Village level (through the Tanzanian constitution) – the Village Environment Management Committee is charged with looking after marine resources on a co-management basis (although no further information on how far those rights of management go is given). Whilst Annex 1.1 gives break down of all the policies and legal frameworks that govern the environment no mention is made of CPR (ie no mention of access rights, use rights, entry restrictions etc).

Kenya: BMC have been introduced in Kenya, the structures of these committees are closely tied to previous traditional institutions that had become largely defunct following the introduction of formal fisheries management institutions. However sufficient remnants of these traditional institutions exist for BMC to be based on. Traditionally, fish landing sites were controlled by an elder of the landing site “*mzee wa bandari/liko*” whose role was to manage activity at the beach, advice on when and where to fish (not advise rather than order), to mediate in the case of conflict/accidents, grant access to outsiders. However, report notes that although the vestiges of such a system still exist elders carry considerably less authority and respect than before (formal fisheries management was introduced) and this is proving a problem in the set up of BMC. Whilst the Fisheries Department has a legal mandate to manage fisheries it is rapidly becoming aware that it needs to involve other stakeholders in management (not least because the process of decentralisation has put human resource constraints on the department).

The introduction of beach management units/committees (BMU and BMC) are a key plank of the government’s bid to decentralise the management of CPR in both Kenya and Tanzania. These units/committees should have a broad remit – including regulating behaviour at the beach, promoting compliance with fishing regulations, education and sensitisation. But so far they have proved ineffectual because they have received little support from Fisheries Departments and because there was considerable conflict among members and mistrust between district extension staff and BMC managers (pg 20). In Tanzania they have not yet been introduced on the coast – only on Lake Victoria.

6. SWOT ANALYSIS OF CPR CONTRIBUTION TO FISHERIES DEVELOPMENT

Strengths

Weaknesses

Lack of informal (traditional) management at the local level in either country and the impact this is likely to have on successful establishment of BMC/BMU.

Lack of information on the artisanal fisheries sector (and its importance to local livelihoods) means that DoF attention is lacking.

Opportunities

Threats

Increased access to offshore resources (which are less exploited)

Encouragement of increased access to offshore resources without sufficient controls on effort and catch.

BMU/Committees if they are given sufficient support and funding.

Box 1: resource type

Appropriators are	Excludable	Non-excludable
Appropriation is		
Competitive Rivalry (subtractable)	PRIVATE	COMMON POOL (CPR)
Non-competitive Non-rivalry (nonsubtractable)	CLUB	PUBLIC

CPR = a resource where one person's use subtracts from another's and where it is often necessary (but difficult and costly) to exclude other potential users outside the group from using the resource. The group may be large (all national fishers) or small (fishers from one beach) and may consist of primary stakeholders (ie fishers) and/or secondary stakeholders (ie environmentalists, traders). An open access (OA) resource is defined as one where there are no restrictions on entrants or extraction, no defined group of users and no means of excluding others.

Box 2: typology of use-rights

	Access	Withdrawal	Management	Exclusion	alienation
Owner	X	X	X	X	X
Proprietor	X	X	X	X	
Claimant	X	X	X		
Authorised user	X	X			
Authorised entrant	X				

i. Project number: R8210

ii. Dates: Sept 2002- Feb 2005

FTR just completed (still 'draft') and no further appendices immediately available.

iii. Project title: The use of Sluice Gates for Stock Enhancement and Diversification of Livelihoods

iv. Lead institution: Saleem Huq, IIED

v. Project purpose

to optimise use of sluice gates to give improved integration of water control for natural fish stock enhancement with rice farming to benefit poor fishing and farming communities; to improve the decision-making capacity of poor farmers/fishers in managing the water in modified floodplains for the mutual and synergistic benefits of both rice and fish crops and, thereby, provide improved, more diverse and secure livelihoods.

vi. Project relevance to Programme logframe

Not stated.

vii. Project relevance to CPR: 4 (primary focus was water flow aspects of sluice gates and the impact of this on fisheries management – which is highly relevant to management of fish and water CPR)

5=very relevant and focus of project; 4=very relevant but not primary focus of project; 3=moderately relevant; 2=little relevance; 1=no relevance

viii. **Key resource(s)** (tuna fisheries/hilsa fishery etc) that the project targeted and any secondary resources affected (water courses, other fish stocks)

Inland fisheries in Bangladesh/water resources/farming land

ix. **Resource type defacto/dejure** (see box 1):

Inland fisheries are either de jure open access (but de facto CPR under strict access regime) or de jure private (leased); land is private; water is a CPR under open access management regime (although de facto highly controlled by specific groups)

x. **Key resource users** (industrial fishing companies/resource poor fishers/donors etc) of the target resources and others likely to have been affected by the project (women, farmers etc)

Fishers, farmers, sluice gate managers, households

1. Importance of CPR to poor

At least 75% of the floodplain catch – which is de jure open access (anyone can fish there) but de facto controlled by a number of powerful interest groups - is taken by occasional or part-time fishers as a supplementary activity to rice farming. Water as a CPR resource is important for both fish production, rice farming, general household survival, cottage industries (weaving for example).

2. Importance of CPR to wider economy

Bangladesh depends heavily on rice production - over 40% of the Bangladesh floodplain has been modified and compartmentalised in order to give more complete control over water for rice growing. But country also relies upon fish catch to supplement diet and $\frac{3}{4}$ of inland fish catch comes from the floodplain. In terms of maintaining development goals (self-sufficiency in food production, nutrition levels, employment etc), CPR of critical importance.

3. Use-rights of CPR defined (see Box 2)

Sluice gates are operated by a committee made up of key local users – although in some cases management comes directly from the Bangladesh Water Development Board. In so far as the water contained within the polders is controlled by the sluice gates then the Sluice Gate committee retains management rights over water resources but access and withdrawal rights lie with all users. There is no indication as to whether rights of exclusion over water resource (different from fisheries resources where such rights are exercised both de jure – by leaseholders; and de facto – by musclemen) exist.

4. Constraints to management/performance of CPR

The operation of sluice gates impacts upon the management/performance of CPR (although it is not possible to quantify this). Through participatory techniques, the project identified the following as problems resulting from sluice gate operation – the predominance of farmers needs which disadvantages fishers; local elites influencing gate operation; individuals benefiting at the expense of farmers and fishers. Bottlenecks to improved management were identified as: poor cooperation within the sluice gate committee; poor coordination of government, community and other stakeholders; inadequate fisher representation on the committee; decision-making without field verification or monitoring; pressure groups influencing gate operation; inadequate gate operation guidelines; unavailability of government officials at key times; no supervision/monitoring of sluice gate management; low local awareness levels.

5. key legal/policy frameworks that govern CPR

The Government of Bangladesh/DFID/World Bank Fourth Fisheries Project has been instrumental in guiding the use of sluice gates (how and when they should be opened/closed etc to meet diverse needs of fish and farmers and to mitigate flooding). Use of sluice gates is now part of National Water Management Plan of Bangladesh which should lay the ground work for fishers gaining more of a voice over the management of the sluice gates (previously they have had little say in when they are opened/how they are used).

6. SWOT ANALYSIS OF CPR CONTRIBUTION TO FISHERIES DEVELOPMENT

Strengths

Ease with which project was able to set up agreements on improved management of sluice gates.

Weaknesses

Continued rent-seeking behaviour of elites with water and fish resources

Opportunities

Recognition that more participatory management of sluice gates would be beneficial

Threats

Box 1: resource type

Appropriators are Appropriation is	Excludable	Non-excludable
Competitive Rivalry (subtractable)	PRIVATE	COMMON POOL (CPR)
Non-competitive Non-rivalry (nonsubtractable)	CLUB	PUBLIC

CPR = a resource where one person's use subtracts from another's and where it is often necessary (but difficult and costly) to exclude other potential users outside the group from using the resource. The group may be large (all national fishers) or small (fishers from one beach) and may consist of primary stakeholders (ie fishers) and/or secondary stakeholders (ie environmentalists, traders). An open access (OA) resource is defined as one where there are no restrictions on entrants or extraction, no defined group of users and no means of excluding others.

Box 2: typology of use-rights

	Access	Withdrawal	Management	Exclusion	alienation
Owner	X	X	X	X	X
Proprietor	X	X	X	X	
Claimant	X	X	X		
Authorised user	X	X			
Authorised entrant	X				

- i. Project number: R8249
- ii. Dates: 15/1/03-1/03/03
- iii. Project title: Livelihoods assets required for an East Africa FAD Programme
- iv. Lead institution: Samaki Consultants Ltd, Tanzania, MD Richmond
- v. Project purpose

To assess the livelihoods assets needed for the successful implementation of a FAD programme in East Africa (based on evidence from Tanzania).

- vi. Project relevance to Programme logframe
 Contributes to Purpose 2: enhancement fisheries; Contributes to Programme output OVI 1.2: Improved understanding of the importance of capture and enhancement fisheries within complex livelihood strategies of the poor and the factors influencing their livelihood choices in target countries by 2003.

This information from AR 03/04 – information not in FTR

- vii. Project relevance to CPR: 4 (stocks from FAD important to CPR debate but the FAD themselves were the focus of the project rather than the stock)

5=very relevant and focus of project; 4=very relevant but not primary focus of project; 3=moderately relevant; 2=little relevance; 1=no relevance

- viii. **Key resource(s)** (tuna fisheries/hilsa fishery etc) that the project targeted and any secondary resources affected (water courses, other fish stocks)

Off shore large pelagics (tuna)/tuna stocks aggregating to FAD and secondary resource is inshore/reef stocks

- ix. **Resource type defacto/dejure** (see box 1):

CPR Tuna stocks - government is able to exclude certain vessels from territorial waters and from EEZ but how effective govt. is remains unknown.

CPR/Private FAD stocks although excludability would be costly and difficult whether privately/cooperatively/NGO owned

- x. **Key resource users** (industrial fishing companies/resource poor fishers/donors etc) of the target resources and others likely to have been affected by the project (women, farmers etc)

Resource poor fishers in Coastal Tanzania – mainly fishing from open boats with sails (only small number of engines). Some currently fish off shore for large pelagics but constrained by seasons.

1. Importance of CPR to poor

It is estimated that up to 50% of the Tanzanian population is poor (pg 8) and the majority of these in rural areas and engaged in livelihoods based on natural resources. Poverty is greatest in the south (the focus region of the project) and is a considerable problem (along with political uncertainty) in Zanzibar (focus region for the project). Fish forms an important part of the diet in Zanzibar. Large pelagics form a substantial part of the dietary intake of coastal communities and also the basis for many coastal livelihoods – there is a thriving market for large pelagics and catches peak during the tourist season. Increasing access to large pelagics through FADS – which would mean that fish are more accessible during those seasons where normally the smaller boats and those with engines do not go to sea – would thus have a substantial impact on the livelihoods of coastal communities. What is more, increasing accessibility to offshore stocks would lightened the load on inshore stocks (another CPR) – currently believed to be overfished.

2. Importance of CPR to wider economy

Regionally, large pelagics are very important for the tourist industry (a significant consumer) and local food merchants – there is a growing taste for fresh/chilled fish over dried/smoked fish (pg 6). There is currently no (legal) export of large pelagics due to food hygiene issues so of no relevance to national/export economy.

3. Use-rights of CPR defined (see Box 2)

Use rights of FAD stocks are not defined because they currently do not exist: a number of possible rights-bundles are discussed, however.

That the FAD are set up by an NGO/the state and thus those sanctioned by the state/NGO would have access and withdrawal rights and some degree of management rights. If the FAD are set up by individuals/coops then use-rights could be extended through management, exclusion and alienation too.

However, no matter the option taken, there is a high cost and much difficulty involved in controlling the range of use rights.

4. constraints to management/performance of CPR

No pertinent laws/policies to work with (although frameworks exist, see below).

Lack of investment/access to finance for fishing gears.

The project identified lack of social organisation required to foster sufficient collection action to manage the CPR in a number of sites. Not all villages have sufficient institutional support to enable them to manage a FAD.

High cost of FAD – 1 FAD that is able to withstand the high energy environment of the ocean costs about the same as an offshore fishing vessel but because it has no value outside being a FAD has to be regarded as a running cost rather than an asset.

5. key legal/policy frameworks that govern CPR

There is historically no ownership of inshore or offshore fisheries in Tanzania (pg 10 – but note that ‘ownership’ is not defined). There is currently no provision within Tanzanian law to safeguard the ownership of FAD or their product (fish). Fishing has traditionally been managed under OA in Tanzania (pg 28) and thus establishing ‘use rights’ or ‘property rights’ would be legally problematic – although not impossible as demonstrated by recent programmes that have laid the framework for participatory marine resource management so the potential to extend this to FAD exists.

The country is described as having a ‘progressive and supportive policy environment (pg 24) which would apparently explicitly favour the exploration of the potential for FAD.

Tanzania has a good record of legal/policy support to coops which might be the best way forward for FAD development.

6. SWOT ANALYSIS OF CPR CONTRIBUTION TO FISHERIES DEVELOPMENT

Strengths

- potential room for catch growth in local large pelagic stocks

Weaknesses

- lack of legal framework or policy that would shape development of a FAD programme

Opportunities

- increase in access to high value fish stocks
-

Threats

- high cost of FAD
- falling tourist numbers and thus falling market for FAD related stocks

Box 1: resource type

Appropriators are	Excludable	Non-excludable
Appropriation is		
Competitive Rivalry (subtractable)	PRIVATE	COMMON POOL (CPR)
Non-competitive Non-rivalry (nonsubtractable)	CLUB	PUBLIC

CPR = a resource where one person's use subtracts from another's and where it is often necessary (but difficult and costly) to exclude other potential users outside the group from using the resource. The group may be large (all national fishers) or small (fishers from one beach) and may consist of primary stakeholders (ie fishers) and/or secondary stakeholders (ie environmentalists, traders). An open access (OA) resource is defined as one where there are no restrictions on entrants or extraction, no defined group of users and no means of excluding others.

Box 2: typology of use-rights

	Access	Withdrawal	Management	Exclusion	alienation
Owner	X	X	X	X	X
Proprietor	X	X	X	X	
Claimant	X	X	X		
Authorised user	X	X			
Authorised entrant	X				

- Project number: R8285
- Dates:1/3/03-28/2/05

FTR just completed and additional appendices not immediately available.

- Project title: Fisheries Data Collection and Sharing mechanisms for co-management
- Lead institution: MRAG (Ashley Halls)
- Project purpose

Identify, develop and evaluate participatory data collection and sharing mechanisms (systems) to improve the (co)-management of capture and enhancement fishery resources important to the livelihoods of the poor.

- Project relevance to Programme logframe

Contributes to goal “benefits for poor people generated by application of new knowledge to fisheries management systems”.

- Project relevance to CPR: 4 (main focus was on the construction of a guidelines manual for collecting the data that would be used to manage such resources)

5=very relevant and focus of project; 4=very relevant but not primary focus of project; 3=moderately relevant; 2=little relevance; 1=no relevance

- **Key resource(s)** (tuna fisheries/hilsa fishery etc) that the project targeted and any secondary resources affected (water courses, other fish stocks)

All fisheries resources under co-management arrangements

- **Resource type defacto/dejure** (see box 1):

n/a

- **Key resource users** (industrial fishing companies/resource poor fishers/donors etc) of the target resources and others likely to have been affected by the project (women, farmers etc)

Fishers engaged in co-management arrangements, managers of such resources.

1. Importance of CPR to poor

“all countries included in the review recognise the importance of their inland capture fisheries to the livelihoods of the poor rural communities” (pg 7)

2. Importance of CPR to wider economy

all countries included in the review recognise the importance of their inland capture fisheries [...] and their contribution to national food security”.

3. Use-rights of CPR defined (see Box 2)

Not specified

4. constraints to management/performance of CPR

Lack of data on ‘informal’ sectors, particularly those fisheries under co-management arrangements. Inability of resource users to make decisions about how they should manage their resources because they lack information (statistics) on catch, effort, species composition, cost and earnings, etc.

5. key legal/policy frameworks that govern CPR

Nothing specified, except the note that most developing countries are woefully lacking in good quality statistics about the ‘informal’ fisheries sector (ie those resources under CPR regimes).

6. SWOT ANALYSIS OF CPR CONTRIBUTION TO FISHERIES DEVELOPMENT

Strengths

Weaknesses

None identified

None identified

Opportunities

Threats

The ability to develop ‘context appropriate systems’ for fisheries management (pg 20).

Cost and capacity implications of investing in such data collection exercise.

Empowerment of fishers through the ability to make informed decisions of the management and use of their capital assets (pg 20)

Ability of government to better manage CPR by having accurate data on informal systems.

Box 1: resource type

Appropriators are	Excludable	Non-excludable
Appropriation is		
Competitive Rivalry (subtractable)	PRIVATE	COMMON POOL (CPR)
Non-competitive Non-rivalry (nonsubtractable)	CLUB	PUBLIC

CPR = a resource where one person's use subtracts from another's and where it is often necessary (but difficult and costly) to exclude other potential users outside the group from using the resource. The group may be large (all national fishers) or small (fishers from one beach) and may consist of primary stakeholders (ie fishers) and/or secondary stakeholders (ie environmentalists, traders). An open access (OA) resource is defined as one where there are no restrictions on entrants or extraction, no defined group of users and no means of excluding others.

Box 2: typology of use-rights

	Access	Withdrawal	Management	Exclusion	alienation
Owner	X	X	X	X	X
Proprietor	X	X	X	X	
Claimant	X	X	X		
Authorised user	X	X			
Authorised entrant	X				

i. Project number: R8292 (very closely related to project R7335)

ii. Dates: 1/4/03-31/3/05

FTR not written yet, all information from 03-04 Annual Report

iii. Project title: Uptake of adaptive learning approaches for enhancement fisheries

iv. Lead institution: MRAG (person note stated)

v. Project Purpose: to increase the transferability and uptake potential of adaptive learning tools and approaches already shown to have had beneficial impacts on poor people's livelihoods. This will be achieved by testing products (process methodologies, adaptive models) developed in previous FMSP projects (particularly R7335), in different types of enhanced fisheries in new institutional settings.

vi. Project relevance to Programme logframe

Not stated

vii. Project relevance to CPR: 4 (primary focus is communication strategies and adaptive learning techniques but situated mostly in CPR fisheries)

5=very relevant and focus of project; 4=very relevant but not primary focus of project; 3=moderately relevant; 2=little relevance; 1=no relevance

viii. **Key resource(s)** (tuna fisheries/hilsa fishery etc) that the project targeted and any secondary resources affected (water courses, other fish stocks)

Enhancement fisheries in Lao, Cambodia, India and Vietnam

ix. **Resource type defacto/dejure** (see box 1):

No information given.

x. **Key resource users** (industrial fishing companies/resource poor fishers/donors etc) of the target resources and others likely to have been affected by the project (women, farmers etc)

Not given

1. Importance of CPR to poor

Enhancement fisheries are very important to the diet and income of the poor and usually conducted in CPR.

2. Importance of CPR to wider economy

Not specified

3. Use-rights of CPR defined (see Box 2)

Not specified

4. constraints to management/performance of CPR

Lack of knowledge of how information on enhancement fisheries is transferred and why outcomes of enhancement fisheries do not often meet expectations for funders/investors.

5. key legal/policy frameworks that govern CPR

Not stated

6. SWOT ANALYSIS OF CPR CONTRIBUTION TO FISHERIES DEVELOPMENT

Strengths

Weaknesses

Current lack of information on how enhancement information is transferred; No information on why some enhancement fisheries perform less well than others.

Opportunities

Threats

Better transfer of information – and knowledge about how information is transferred – will improve methods of introducing new techniques/information to enhanced fisheries.

No apparent threats from information available.

Box 1: resource type

Appropriators are Excludable Non-excludable

Appropriation is

Competitive Rivalry (subtractable) PRIVATE COMMON POOL (CPR)

Non-competitive Non-rivalry (nonsubtractable) CLUB PUBLIC

CPR = a resource where one person’s use subtracts from another’s and where it is often necessary (but difficult and costly) to exclude other potential users outside the group from using the resource. The group may be large (all national fishers) or small (fishers from one beach) and may consist of primary stakeholders (ie fishers) and/or secondary stakeholders (ie environmentalists, traders). An open access (OA) resource is defined as one where there

are no restrictions on entrants or extraction, no defined group of users and no means of excluding others.

Box 2: typology of use-rights

	Access	Withdrawal	Management	Exclusion	alienation
Owner	X	X	X	X	X
Proprietor	X	X	X	X	
Claimant	X	X	X		
Authorised user	X	X			
Authorised entrant	X				

- Project number: R8294 (follow on project to R7334)
- Dates: 1/4/03-31/3/05
FTR not written yet, assessment based on 03-04 Annual Report.
- Project title: Enabling better management of fisheries conflicts

- Lead institution: Worldfish (Parveen/M. Ahmed)

- Project Purpose

Not specified

- Project relevance to Programme logframe

Not specified

- Project relevance to CPR: 5

5=very relevant and focus of project; 4=very relevant but not primary focus of project; 3=moderately relevant; 2=little relevance; 1=no relevance

- **Key resource(s)** (tuna fisheries/hilsa fishery etc) that the project targeted and any secondary resources affected (water courses, other fish stocks)

Cambodia: Great Lake/Tonle Sap fishers

Bangladesh: coastal artisanal fishers and inland fisheries

India: coastal artisanal fishers

- **Resource type defacto/dejure** (see box 1):

Not specified

- **Key resource users** (industrial fishing companies/resource poor fishers/donors etc) of the target resources and others likely to have been affected by the project (women, farmers etc)

Not specified but by inference small scale fishers in Cambodia and Bangladesh and small-scale and medium scale in India (where chief source of conflict is with large coastal vessels)

1. Importance of CPR to poor

Not specified

2. Importance of CPR to wider economy

Not specified

3. Use-rights of CPR defined (see Box 2)

Not specified but Annual Report states that access rights in Cambodia and Bangladesh are often denied to poor fishers by wealthy elites; access rights in India also contested by small-scale fishers against wealthier mechanised boat owners

4. constraints to management/performance of CPR

The level of conflict in the fishery and the level of non-compliance with fisheries regulations (alluded to in Annual Report but no further information given).

5. key legal/policy frameworks that govern CPR

Not specified – YET NON COMPLIANCE WITH LEGISLATION MIGHT BE INTERESTING TO FOLLOW UP ON

6. SWOT ANALYSIS OF CPR CONTRIBUTION TO FISHERIES DEVELOPMENT

Strengths

Weaknesses

Level of conflict on CPR

Opportunities

Threats

Box 1: resource type

Appropriators are	Excludable	Non-excludable
Appropriation is		
Competitive Rivalry (subtractable)	PRIVATE	COMMON POOL (CPR)
Non-competitive Non-rivalry (nonsubtractable)	CLUB	PUBLIC

CPR = a resource where one person's use subtracts from another's and where it is often necessary (but difficult and costly) to exclude other potential users outside the group from using the resource. The group may be large (all national fishers) or small (fishers from one beach) and may consist of primary stakeholders (ie fishers) and/or secondary stakeholders (ie environmentalists, traders). An open access (OA) resource is defined as one where there are no restrictions on entrants or extraction, no defined group of users and no means of excluding others.

Box 2: typology of use-rights

	Access	Withdrawal	Management	Exclusion	alienation
Owner	X	X	X	X	X
Proprietor	X	X	X	X	

Claimant	X	X	X
Authorised user	X	X	
Authorised entrant	X		