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***Data Collection and Sharing Mechanisms for  
Co-Management (R8285)***

**Project Planning Workshop Report**

**FAO Headquarters, Rome, 28-30<sup>th</sup> April 2003**

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**Fisheries Management Science Programme**

**MRAG Ltd**

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## Executive Summary

This report describes the activities, outputs, and conclusions of the Project Planning Workshop for FMSP project R8285 'Fisheries Data Collection and Sharing Mechanisms for Co-Management' held at FAO, Headquarters, Rome, 28-30<sup>th</sup> April, 2003. Eight delegates attended the workshop from the 7 institutes collaborating on the project. Dick Coutts of the SFLP and Tim Bostock (SIFAR +10) also attended for short periods and agreed to informally collaborate with the project.

The main purpose of the workshop was to discuss DFID's comments on the RD1 and amend the project activities and outputs accordingly. The workshop also provided an opportunity to clarify the roles and responsibilities of each collaborator, draw up timelines for activities and deliverables and deal with any outstanding administrative matters.

The general consensus that emerged during the course of the workshop in response to DFID's comments on the RD1 was that, rather than attempting to develop and field test some form of generic data collection and sharing system, the project should instead seek to develop guidelines or a manual, emphasising processes for designing, developing and implementing locally-appropriate data collection and sharing systems that satisfy information needs at each management level. It was proposed that these "Guidelines for the Development and Implementation of Data Collection and Sharing Systems for Co-Management" should be published as an *FAO Fisheries Technical Paper* that will supplement other relevant guidelines and manuals in the series including FAO (1999). Research emphasis would be placed upon the development of local data collection and sharing mechanisms, but investigations into low-cost data collection systems at the national (macro and meso) level would also be examined.

These guidelines will be developed on the basis of stakeholder consultations as well as lessons and experiences generated under the project collaborator's previous and existing programmes. These, amongst other relevant activities, seek to develop and test data collection and sharing systems (including participatory approaches) with management institutions at all levels in more than 10 countries<sup>1</sup>. Since these programmes are at various stages of development, many have also agreed to evaluate, and where possible, field-test the guidelines (Details of collaborating Institutions and evaluation proposals are provided in Table 1 below). This would effectively replace the originally proposed testing and evaluation of a generic data collection and sharing system and would represent immediate uptake of project outputs.

Collaboration will be sought with other co-management projects outside the main geographic area of this project.

The need to consider information requirements to support a more multi-sectoral / holistic sustainable livelihoods approach to the management of natural resources (fisheries being just one of them) raised considerable debate during the workshop. It was recognised that the fisheries sector is one of many productive sectors that must address national objectives concerned with improving food security and reducing poverty. It was also recognised that to develop and monitor the impact of how sectoral policy is addressing such objectives will require the use of additional and non-traditional indicators.

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<sup>1</sup> The Guidelines Document will be developed and evaluated in a participatory manner with institutions at all levels of management, including local fisher communities, DoF staff, and regional management and advisory bodies from more than 10 countries.

It was agreed that data and information (and their indicators) to describe the contribution that fisheries make to livelihood *outcomes* such as alleviating poverty, reducing vulnerability, and improving food security are relevant and therefore should be considered regardless of the management ethos. Many can often be readily collected using standard fisheries data collection tools and sources. However, the selection or inclusion of *explanatory* (control) variables or attributes to improve understanding of livelihood outcomes involving multiple livelihood strategies is less clear.

To address this issue, agreement was reached to build upon the research outputs of R7834 as well as drawing upon the lessons and experiences of ongoing projects (including SIFAR+10 and the SFLP) that are currently attempting to identify appropriate SL explanatory and outcome variables and their indicators. Dick Coutts (SFLP) offered to provide case study material to help in this respect. Chris Ninnes and Jim Scullion also agreed to advise on what data and information would be appropriate to ensure a greater SL perspective and would allow the contribution of fisheries to poverty alleviation strategies to be assessed.

However, issues surrounding who will collect, interpret and act upon this potentially multi-sectoral data and information under *existing* institutional structures which tend to adopt a more single sector approach to resource management including fisheries, currently remains largely unresolved (Section 2).

The proposed content of System Requirements Reports (Annex 4), which will provide the basis for developing the Guidelines were discussed and changes suggested in the light of the above. Details of other supporting activities and outputs associated with the development of these Guidelines were agreed including the Guidelines development workshop, and the evaluation and testing phase. A revised project activities timetable and other administrative issues were also agreed (Section 2.7, 2.8) as well as priority tasks for immediate action (Section 3).

## **1. Introduction**

### **1.1. Background**

The workshop was held at FAO headquarters, Rome between 28<sup>th</sup> and 30<sup>th</sup> April 2003 and was attended by the following:

Ashley Halls (Principal Investigator, MRAG Ltd, and Chairman of the meeting)  
Robin Welcomme (RRAG, Meeting Rapporteur)  
Richard Grainger (FIDI, FAO)  
Devin Bartley (FIRI, FAO)  
Kuperan Viswanathan (The World Fish Centre)  
Wolf Hartmann (MRC)  
Chris Ninnis (RFIS)  
Jim Scullion (ILM)  
Tim Bostock (FAO, SIFAR)  
Dick Coutts (SFLP)

Paul Thompson (CBFM2, The World Fish Centre) was unable to attend. The details of the projects collaboration with the CBFM2 project in Bangladesh will be discussed with Paul during the PI's next visit to Bangladesh in June 2003. Details of any collaborative agreements reached will be reported separately.

### **1.2. Workshop Purpose**

The purpose of the workshop was to bring together representatives from each collaborating institution/organisation to:

- Clarify the roles and responsibilities of each collaborator.
- Ensure that a common vision exists among collaborators with respect to the aims, activities and outputs of the project.
- Facilitate improved knowledge and understanding of project partners' programmes, projects and research initiatives.
- Add further detail to the project's activities and outputs described and refine or modify these where necessary in response to DFID's comments on the RD1.
- Make any necessary revisions to budget allocations in the light of any recommended changes to the project.
- Draw up timelines for activities and deliverables.

### **1.3. Activities (Agenda)**

All of the items included in the workshop agenda (Annex 1) were discussed during the workshop as follows:

#### **Day 1:**

- Welcome and introduction by the PI.
- Presentation by the PI describing some background to the meeting including the details of project call (See Annex 2 – Workshop Presentations).
- Twenty-minute presentations by project collaborators representing the four different levels of management institutions (see Annex 2. Additional notes are available from the PI.):

- The Regional Fisheries Information System (RFIS) Project of SADC representing regional management institutions (Level 3) presented by CN of RFIS.
- ILM Project representing local and national management institutions (Level 1 & 2) presented by JS of ILM.
- The Mekong River Commission (MRC) and the Mekong River and Reservoir Fisheries (MRRF) Project representing regional, national and local management institutions (Levels 1,2 and 3) presented by WH of the MRC.
- The Fisheries Co-Management Research Project (FCMRP) and the Community-Based Fisheries Management (CBFM2) Project representing national and local management institutions (Levels 1 and 2) presented by KV of the WFC.
- The Inland Water Resources and Aquaculture Service of the FAO (FIRI) representing international management advisory institutions (Level 4) presented by DB of FIRI.
- The Fisheries Information, Data and Statistics Department of the FAO (FIDI) representing international management advisory institutions (Level 4) presented by RG of FIDI with particular emphasis on the Fisheries Global Information System (FIGIS).
- MRAG Ltd acting as project coordinator and administrator, as well as providing technical inputs relevant to all four management levels.

The above presentations followed a common format covering the following items:

- Institutional/Programme/Project background
  - Relevant experience/mandates, and details of projects/programmes
  - Expectations (including outputs) from the project
  - Contributions/inputs/activities to the project.
- Presentation by PI of the project proposal including details of the project purpose, demand, target institutions and beneficiaries, activities, outputs and OVI, MOVs and proposed mechanisms and approaches to promote and disseminate the projects outputs.

## Day 2:

- The majority of Day 2 was spent discussing DFID's comments on the RD1 (see Annex 3). Tim Bostock contributed to this process during the afternoon session helping to clarify, and elaborating on, a number of specific comments.
- The remainder of the afternoon session was spent refining, revising and adding detail to the project activities and outputs. Discussions and presentations (by the PI) were structured around the four remaining stages of the project:

Stage 1. Project Planning workshop.

**Stage 2. Identification of system requirements.**

**Stage 3. Design proposal(s) for system(s)**

**Stage 4. System Testing and Evaluation**

**Stage 5. System Dissemination and promotion.**

- The majority of this time was spent discussing Stage 2 – the identification of system requirements which comprises three main sub-components:
  - Data and information requirements to support (co-) management activities and advisory mandates of stakeholders at all four management levels.



- Potentially appropriate and cost-effective sources, collection tools and methodologies to provide the above.
  - Potentially appropriate data and information sharing mechanisms in support of the above.
- The PI presented some theory on how these system requirements might be identified to meet the needs of stakeholder institutions at each management level (see Annex 2) based upon the findings of previous DFID research (R7042).
  - Building on these presentations, the PI also circulated draft tables of contents (TOCs) [see Annex 4] for System Requirements Reports that, when compiled by the project's collaborators with their own project/programme partners, could provide a wide sample of system requirements and relevant information to help design or select appropriate data collection and sharing systems (or guidelines for their development) at all four management levels in preparation for the Systems Design workshop (Stage 3).
  - The remainder of the afternoon session was spent discussing and commenting upon these TOCs.

### Day 3:

- Discussions and comments on the TOCs for the System Requirements Reports continued during the morning session with particular emphasis on how they should be modified to support a broader sustainable livelihoods (SL) approach to management. Dick Coutts (SFLP) contributed to this process, emphasising the importance of a multi-sectoral approach to management for improving livelihood outcomes and reducing poverty and vulnerability. JS and CN also supported broadening the scope of the TOCs to include information requirements to provide the relevant information to develop and implement poverty alleviation strategies.
- A table summarising which of the project's collaborators will produce System Requirements Reports for each management level, including details of country locations, environmental regimes, and participating partner organisations was also compiled during the morning session (see Table 1, Section 2.2 below). This also includes agreed details of collaborators programmes and projects under which the main outputs from the project will be tested and evaluated.
- The afternoon session was devoted to discussing and agreeing upon the details of the activities and outputs associated with the final three stages of the project ie the system design (workshop), system testing and evaluation and system dissemination and promotion, following a presentation by the PI describing existing proposals and raising key issues for discussion (see Annex 2).
- This was followed by brief discussions regarding:
  - Necessary changes to the project activity chart (timetable) and budget.
  - Collaborators requirements with respect to MOUs and LOA, and
  - Collaboration with STREAM.



## 2. Outcomes and Agreements

### 2.1. DFID's comments on the RD1

Page 1, Para 4 and Page 3, Para 13

The delegates agreed that it is important to recognise the 'dynamic nature' of data and information requirements. For example, as institutional capacity and resources grow, different management perspectives may emerge or more comprehensive or relevant data requirements may be sought. The development of flexible data collection and sharing systems that can evolve to meet new requirements or perspectives was thus recognised as important.

However, it was also recognised that this requirement appears to exceed what was anticipated by DFID at the project call stage when it was stated that what is needed "...is a simple data collection methodology and information system" implying that the development of some form of more 'static' blueprint solution should be sought.

Whilst the delegates agreed that generic data requirements may exist to some extent, it is not feasible to develop generic data collection (and sharing) systems. This supports the findings of R7042 and FAO (1999) which recognise that systems must be tailored according to (changing) different data and information requirements (and required levels of accuracy and precision), available institutional capacity and resources, the structure, operation and characteristics of the fishery, and the livelihood context that the fishery operates within that will dictate the selection of appropriate data collection sources and tools, sampling survey designs etc.

The delegates also agreed that a plethora of effective data collection tools and methods already exist to meet the data and information needs of managers, at least at the national (macro and meso) levels. The development of new, innovative or novel approaches at this level was therefore regarded as unnecessary. However, the proposed guidelines may present this plethora in some form of hierarchy or "expert system".

It was, however, recognised that data collection and sharing mechanisms at the local (micro) level (e.g. participatory data collection and sharing systems) are still at an early stage of development and testing, but offer considerable scope to help meet management information requirements at both local and national level, but it was also noted that "blueprint" designs for such systems are unlikely to be feasible.

The general consensus that emerged during the course of the workshop was rather than attempting to develop and field test some form of generic system, the project should instead seek to develop guidelines or a manual emphasising processes for designing, developing and implementing locally-appropriate data collection and sharing systems that satisfy information needs at each management level. It was proposed that these "Guidelines for the Development and Implementation of Data Collection and Sharing Systems for Co-Management" should be published as an *FAO Fisheries Technical Paper* and will supplement other relevant guidelines and manuals in the series including FAO (1999). Research emphasis would be placed upon the development of local data collection and sharing mechanisms, but investigations into low-cost data collection systems at the national (macro and meso) level would also be examined, including the integration of fisheries information systems with other information systems to ensure efficient use of other available data.

DB proposed that the project should restrict its focus to identifying system requirements to support only the co-management roles and responsibilities of institutions at each 4 management levels rather than also trying to meet requirements to support their wider roles

and responsibilities/remits. However, the general consensus was that system requirements outside these co-management roles and responsibilities were significant, and often overlapped with those associated with their co-management activities. Delegates also recognised the existence of opportunities to build on co-management activities to support the wider remit of DoFs including the potential of participatory data collection programmes to support national reporting responsibilities including those of other sectors.

This re-orientation of research effort towards developing and testing guidelines rather than attempting to design a comprehensive but generic system was also regarded as less ambitious, thereby also addressing one of DFID's first concerns about the project design.

Considerable scope exists to develop these guidelines based upon the lessons learned and experience currently being gained under the project's collaborator's existing programmes which are, amongst other relevant activities, exploring and testing the utility of participatory data collection and sharing systems. Since these programmes are at various stages of development, opportunities exist for immediate uptake and field-testing of the guidelines (see Table 1 below). This would effectively replace the originally proposed testing and evaluation of a generic data collection and sharing system.

Page 1, Para 5. We agree with this comment and intend to give full consideration to the wide range of data and information requirements for supporting decision-making with respect to livelihood outcomes (see below).

Page 1, Para 6. This report should provide the required details of the collaboration and how it will relate to the project's activities and outputs.

Page 1, Para 7. The "stakeholder analysis" referred to by DFID has already been undertaken under the Project Collaborator's existing programmes and will be included in the System Requirements Reports (see below).

Page 2, Para 8. The project intends to work with fisher communities already participating in collaborators existing research and development programmes as described under Section 15 of the RD1. Further details of these communities and participating institutions are provided in Table 1 below and described in the collaborator's presentations (see Annex 2). Further details of these stakeholders and management arrangements will be included in the System Requirements Reports (see below).

Page 2, Para 9. The term "cost-effective" was borrowed from the Call which lacked any definition of its meaning. Issues concerning the valuation of the resource and the fishery from both socio-economic and political perspectives invariably complicate cost-effectiveness judgements or assessments. The move away from attempting to design a generic data collection and sharing system towards the development and promotion of guidelines to support the design and implementation of more locally-appropriate and context-specific systems effectively shifts the onus of determining what is cost-effective away from the project to the users of the guidelines. Provided that the resource (eg manpower) implications and relative advantages (eg accuracy, precision...etc) of different options are clearly described, the guidelines would allow managers to design systems that they themselves judge cost-effective according to their own criteria. Acceptability and sustainability of any system that is developed on the basis of the guidelines are likely to be indicative of its cost-effectiveness.

Page 2, Para10. Opportunities exist for immediate use (uptake/adoption) of the guidelines during the life of the project by the Project collaborator's own project/programme partners (local fisher communities and Fisheries Departments) as well as the project collaborators themselves who have agreed to field test/promote/use the manual in support of their own

projects, programmes and mandates to alleviate poverty and improve fisheries-dependent livelihoods (see Table 1). This equates to more than 20 local management institutions (communities), working alongside at least 10 national fisheries departments (in the same number of countries), at least three regional management bodies, and the FAO. Activities for uptake promotion and adoption beyond the duration are also described in 15i of the RD1.

Page 2, Para 11. This comment also raised considerable debate during the workshop between the need to take into consideration information requirements to support a more multi-sectoral / holistic sustainable livelihoods approach to the management of natural resources (fisheries being just one of them) versus the information requirements to support the roles and responsibilities of the many *existing* institutional structures which tend to adopt a more single sector approach to resource management including fisheries.

It was agreed that data and information (and their indicators) to describe fisheries dependent livelihood *outcomes* such as poverty, vulnerability, and food security are relevant regardless of the management ethos and can often be readily collected using standard fisheries data collection tools from established sources. However, the selection or inclusion of *explanatory* (control) variables or attributes to understand and improve livelihood outcomes based upon multiple livelihood strategies is less clear. For example, to what extent is it necessary to understand the farming-related livelihood activities and associated policies, institutions and processes of a floodplain fisher who also engages in farming for part of the year to understand and reduce his/her vulnerability? Nor is it obvious who will collect, interpret and act upon this data and information under existing institutional structures. The call implies that the targets of the outputs are primarily fisheries departments and their co-managers (local fisher communities).

The SL framework is not a cause-and-effect model of livelihood outcomes in relation to the wide ranging influencing factors, but merely a broad “checklist” of possible factors that should be taken into consideration when attempting to understand SLs. This raises the question “what data and information should be collected”?

A further issue is that the focus of the SL framework is individuals or households, and therefore its utility for guiding management decision-making concerning resources that are exploited by local or national management *institutions* (villages, communities or nations) is unclear.

The widely used IAD framework is arguably a more useful framework when considering fisheries and other common pool management issues, but similarly is not a cause-and-effect model. R7834 overcame this problem by using the framework to identify relevant (interdisciplinary but not multi-sectoral) explanatory variables and outcome measures, and to generate and test hypotheses concerning fisheries co-management performance. We propose to build upon this approach as well as drawing upon the lessons and experiences of ongoing projects (including SIFAR+10 and the SFLP) that are currently attempting to identify appropriate SL explanatory and outcome variables and their indicators.

Dick Coutts (SFLP) kindly offered to provide case study material to help guide the identification of data and information requirements to support an SL approach to co-management.

CN, JS and DC also agreed to advise on appropriate changes to the TOCs of the System Requirements Reports (see below) to ensure a greater SL perspective and to provide information to assess the contribution that the fisheries sector makes to national poverty alleviation strategies.

The delegates also recognised that opportunities or systems often already exist to collect data and information to support a more SL approach to management. (eg agricultural census – see FAO 2002 Ad hoc consultation on New approaches for the improvement of inland capture fishery statistics....).

Page 2, Para 12. We acknowledge this general comment and will encourage FAO to respond positively to any recommendations on revisions to their existing statistical systems. Indeed the FAO are currently reviewing their data collection advice through their new ‘Strategy for Improving Information on the Status and Trends in Capture Fisheries’.

Page 3, Para 14. We have added “and adopted.” to the end of the sentence describing the purpose OVI and removed the sentence referring to improved livelihoods.

Page 3, Para 15. We agree with this comment.

Page 3, Para 16. We are intending to examine systems that can effectively deal with the collection and sharing of data and information to support the management of straddling and highly migratory stocks through the RFIS Programme. Migratory resources also form a significant component to many river fisheries including those of the lower Mekong basin. The development of appropriate data collection and sharing systems to manage these resources on a regional basis with the assistance of bodies such as the MRC should therefore be given attention.

## **2.2. System Requirements Reports**

System Requirements Reports will be compiled by the project’s collaborators in preparation for the Guidelines Development Workshop (see below - previously the “System Design Workshop”). Details of the countries, environmental regimes and institutions who will identify their data collection and sharing requirements and compiling the reports at the four management levels are summarised in Table 1 below. The table also indicates where and by whom the Guidelines will be evaluated and, where possible, field-tested.

FAO generously agreed to fund the identification of national level (2) system requirements in Cambodia and the Philippines, and compile the Systems Requirements Reports with their DoF partners. DC also kindly agreed to explore opportunities for providing these requirements at different management levels under the SFLP.

The WFC also remarked that opportunities exist to identify system requirements with Cambodian management institutions including DoF staff and local fisher communities under their ADB-funded technical assistance programme.

It was agreed that it would be useful to invite co-management projects outside the immediate geographic area of this project to prepare reports. These would expand the information available, complement the data from the participating projects and serve as a check on their representativity. RW will explore opportunities for informal collaboration with David McGrath’s Community Fisheries and Co-Management Project in the Lower Amazon to further broaden the perspective of system requirements reports.

The general consensus among the delegates was that some of the information to be included in the reports (see draft ToCs – Annex 4) appeared superfluous particularly with respect to the operation and characteristics of the fisheries. The PI emphasised that this information was important to identify the range of appropriate options for data collection system design.

The PI agreed to provide guidance notes for preparing the Reports including explanations of the purpose of the information required under each section.

Revisions to these (ToCs) will be made during the next four weeks when any remaining comments and contributions have been received from the project's collaborators. This will include additional (sub) sections proposed by CN, JS and DC ensure a greater SL perspective and to provide information to assess the contribution that the fisheries sector makes to national poverty alleviation strategies (see above).

The content of these reports should provide, a broad picture of the (i) range of data and information requirements that exists, (ii) typically available manpower, resources and institutional capacity, (iii) structure and operations of co-managed fisheries, (iv) existing and potentially appropriate data collection tools, sources and methods, (v) data storage and processing methods (if any), (vi) requirements and opportunities for data and information sharing and (vii) lessons and experiences of previous or existing attempts to develop data collection and sharing mechanisms. They will cover a range of geographic areas, environmental regimes, and fisheries types at different management levels,

**Table 1** Details of System Requirements Reports to be compiled in preparation for the Guidelines Development Workshop including ongoing programmes/projects under which the draft guidelines will be evaluated.

(a) Level 1 - Local Management Communities/Institutions

Country	Habitat	Number of local management communities /institutions to be consulted	Institutions involved in helping to identify requirements and compiling report	Reporting Responsibility	Project/Programme under which guidelines will be evaluated
Laos	Reservoir River	3 1	MRC/LARREC MRC/LARREC	WH WH	MRRF
Cambodia	Inland	3+	WFC/DOF/FACT (NGO)	KV	ADB Institutional Strengthening Project?
	Coastal	2	WFC/DOF/FACT (NGO)?	KV	FCMRP
Vietnam	Reservoir	3	MRC/RIA2	WH	MRRF
	Lake	1	MRC/RIA2	WH	
Thailand	Inland	4	MRC/DOF	WH	MRRF
	Coastal	1	WFC/CORIN/DOF	KV	FCMRP
Philippines	Coastal	3	UPV/WFC/DOF	KV	FCMRP
Uganda	Lake	2	DFR	JS	ILM
Tanzania	Coastal	Several (grouped)	TANGA (NGO)/ IUCN/ RFIS	CN	RFIS
Mozambique	Coastal	?	IDPPE/RFIS	CN	RFIS
	Coastal	?	IDPPE /WFC	KV	FCMRP
Brazil	River	?	PG7	RW to contact DM/MR	?
Melanesia	Coastal	?	MRAG	AH to contact JA	?
Bangladesh	Inland	5	WFC/DOF and NGOs	PS	CBFM2
25 W. African	Inland Coastal	?	SFLP + sub projects?	DC*	SFLP

\*Dick Coutts has agreed to informally collaborate with this process.

(b) Level 2 – National Management Institutions

Country	Habitat	Institutions involved in helping to identify requirements and compiling report	Reporting Responsibility	Project/Programme under which guidelines will be evaluated
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Laos		MRC/DoF	WH	MRRF
Vietnam		MRC/DoF	WH	MRRF
Cambodia		MRC/DoF/FAO	WH/DB	MRRF / FAO?
Philippines		DoF/FAO	DB	FAO?
Uganda		DoF/FIRRI	JS	ILM
Bangladesh		WFC/DoF	PT	CBFM2
Tanzania	Coastal	DoF/FD	CN	RFIS
Mozambique	Coastal	IDPPE/IIP	CN	RFIS
25 W. African		SFLP	DC*	SFLP

(c) Level 3 – Regional Management Institutions/ Advisory Bodies

Region	Institutions involved in helping to identify requirements and compiling report	Reporting Responsibility	Project/Programme under which guidelines will be evaluated
Lower Mekong Basin	MRC	WH	See 1a & b
SADC	SADC/RFIS	CN	RFIS
Various	FAO Regional Fishery bodies	RG/FIPL/SFS?	?

(d) Level 4 – International Management and Research Institutions / Advisory Bodies

Institutions involved in helping to identify requirements and compiling report	Reporting Responsibility	Project/Programme under which guidelines will be evaluated
FAO	DB/RG	See 1a - c
MRAG	AH	See 1a - c

This material will be synthesised at the Guidelines Development Workshop (see below) to produce the draft *Guidelines for Developing and Implementing Data collection and Sharing Systems for Co-Management*, with the active participation of the project's collaborators and stakeholders involved in the compilation of these reports, including DoF staff,. All collaborators have agreed to encourage active and full participation of their DoF partners in this process.

Given the volume of material contained within these System Requirement Reports, the PI agreed to produce a preliminary synthesis report prior to the Guidelines Development Workshop.

The PI agreed to correspond with RG regarding the details of appropriate technical exercises to be reported by FAO under Section 4 of their Systems Requirements Report.

The deadline for completed reports was set as **30<sup>th</sup> November 2003**.

## 2.3. Guidelines Development Workshop (previously System Design Workshop)

### 2.3.1. Attendance and Venue

It was agreed that the Guidelines Development Workshop, previously the System Design Workshop, should be attended by nine members of Project staff representing the six main collaborating institutes, and two members of DoF staff from each of the collaborators existing projects and programmes. These DoF staff should represent the macro and meso (eg district fisheries officer) management level from 8 case study countries: Laos, Cambodia, Vietnam, Bangladesh, Thailand, Philippines, Uganda, and Tanzania or Mozambique. This will raise the number of workshop attendees from the originally planned 10 to 25. The PI agreed to examine the financial feasibility of this increased attendance. WH agreed to explore the possibility of hosting the workshop at the MRC headquarters, Phnom Penh.



### **2.3.2. Agenda and Activities**

It was agreed that the advice of an experienced facilitator be sought before developing the agenda. However, delegates stressed the importance of agreeing upon a pre-defined format for any presentations based upon the System Requirements Reports.

DB agreed to investigate the costs of an appropriate facilitator such as Ian Cowx who has successfully facilitated previous workshops for FAO on similar themes.

As stated above, it was agreed that the PI will produce a preliminary synthesis report prior to the workshop to identify “common threads and issues for discussion”.

A draft version of Guidelines for the Development and Implementation of Data Collection and Sharing Systems for Co-Management should, together with the Guidelines Development Workshop Report, form the main outputs of the workshop. The PI agreed to take the lead with respect to augmenting and refining the content of the Guidelines generated by the workshop before it is prepared as a draft FAO Fisheries Technical Paper.

The PI acknowledged that a proportion of his time earmarked for the writing/production of the FTR towards the end of Year 3 of the project would have to be allocated for this purpose. This appears justified given that this FAO Fisheries Technical Paper will, instead of the FTR, now form the major project output.

### **2.4. Guidelines Testing and Evaluation**

The draft version of the Guidelines will be evaluated and field-tested where possible under the project Collaborator's existing or planned programmes/projects as indicated in Table 1.

Opportunities may exist to test the Guidelines in the development of a national catch assessment survey through the RFIS project.

Further details of these project activities will be included in the Guidelines Development Workshop Report. Opportunities for evaluation may also exist through a number of co-management pilot projects running under the SFLP. This will need to be confirmed with DC.

### **2.5. Evaluation Workshop**

An evaluation workshop will be held to discuss the results of the applications and evaluations of the Guidelines and to make recommendations for changes to them. Detailed proposals for this workshop will be included in the Guidelines Development Workshop Report.

### **2.6. Outputs, publications etc.**

Changes and recommendations arising from the evaluation workshop will be incorporated into the final version of the Guidelines and published as an FAO Fisheries Technical Paper for circulation among relevant institutions of among FAO Member countries. The Paper will carry the logos of all the Project Collaborator's. FAO agreed to deal with the intellectual property rights issues surrounding the Paper. The PI agreed to contact STREAM to explore opportunities for further uptake and promotion of the guidelines.



2.7. Revised Timetable (Project Activity Chart). O - outputs

Financial Year		2003/2004												2004/2005													
Calendar Year		2003												2004												2005	
Calendar Month		4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2			
Logframe	Project Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
	<b>1 Project Planning W/S</b>	■																									
	Project Panning W/S Report		O																								
	<b>2 Identify data and information requirements</b>																										
	2.1 Self-assessments and literature reviews			■	■	■	■	■	■	■																	
	2.2 Community consultations & workshops			■	■	■	■	■	■	■																	
	<b>3 Identify appropriate options/methods for data collection</b>																										
	3.1 Self-assessments and literature reviews			■	■	■	■	■	■	■																	
	3.2 Community consultations & workshops			■	■	■	■	■	■	■																	
	<b>4 Identify appropriate options/methods for data sharing</b>																										
	4.1 Self-assessments and literature reviews			■	■	■	■	■	■	■																	
	4.2 Community consultations & workshops			■	■	■	■	■	■	■																	
	System Requirements / Options Reports									O																	
	Synthesis of System Requirements / Options											■															
	Synthesis Report in prep for W/S												O														
	<b>2.3;3.3;4.3 Guidelines Development W/S</b>													■													
	Workshop Report														O												
	Writing of draft FAO Tech Pap Guidelines														■	■	■										
	Draft FAO Tech Pap for evaluation																O										
	<b>5 Guidelines Evaluation and Field Testing</b>																										
	5.1 Evaluation & Field testing of Guidelines																	■	■	■	■	■	■	■			
	5.2 System Evaluation workshop																						■				
	<b>6 Disseminate and promote outputs</b>																										
	6.1 Report writing etc																							■			
	FTR																										

## **2.8. Administrative Issues**

The PI agreed to draft an MOU for FAO's collaboration with the project.

The PI agreed to draft an LOA for the WFC collaboration with the project to cover inputs from both KV and PT. In preparation, KV agreed to contact PT regarding inputs and cc AH.

## **3. Workshop Follow-up Summary**

### **3.1. As soon as possible**

- AH to meet JB and CM to discuss and seek approval to proposed changes to project activities and outputs in response to DFID's comments.
- RW to contact McGrath to determine willingness to collaborate in reporting
- AH to seek comments from collaborators on Planning Workshop Report.
- Workshop participants to check accuracy of contents of this report – particularly text followed by a question mark.
- Finalise agreements with WFC.
- AH to meet Paul Thompson in Dhaka in June 2003 to discuss inputs from the CBFM2 Project and draw-up LOA if applicable.
- AH to contact Tim Bostock to discuss SIFAR+10 collaboration and R7834.
- AH to contact DC to confirm details of contributions offered by SFLP (ie case study material to help guide the identification of data and information requirements to support an SL approach to co-management and opportunities for evaluation of the guidelines through a number of co-management pilot projects running under the SFLP.
- CN, JS and DC to provide comments on appropriate changes to the TOCs of the System Requirements Reports (see below) to ensure a greater SL perspective and to provide information to assess the contribution that the fisheries sector makes to national poverty alleviation strategies.
- AH to circulate revised ToCs of the System Requirements Reports and provide guidance notes for their completion.
- AH to correspond with RG regarding details of appropriate technical inputs to be reported under Section 4 of their Systems Requirements Reports.
- AH to send further background on the project to David McGrath and the CFDO and to request contributions to System Requirements identification exercise.
- Collaborators to begin System Requirements identification exercises and begin compiling Reports.
- AH to send hard copies of FTRs for R7042, R7834 and other relevant material (including the final version of this report) to all collaborators.
- AH to send draft MOU to FAO for approval.

### **3.2. In preparation for the Guidelines Development Workshop**

- Collaborators to submit completed System Requirements Reports by November 30th.
- AH to synthesise System Requirements Reports.
- AH to examine financial feasibility of increase numbers of participants for the Guidelines Development Workshop from 10 to 25.
- AH to circulate draft format for presentations for the Guidelines Development Workshop.
- DB to investigate costs of an appropriate facilitator for the Guidelines Development Workshop.
- WH to explore possibility of hosting the Guidelines Development Workshop at the MRC headquarters, Phnom Penh.

- AH to contact Graham Haylor (STREAM) to explore opportunities for further uptake and promotion of guidelines.

### **3.3. Throughout the duration of the project**

- AH to provide monthly updates of project news and progress including reminders of deadlines for deliverables etc.



## **Annexes**

### **Annex 1 - Agenda**

#### **Day 1.**

##### **09:30-10:00 Welcome and Introduction**

##### **10:00 – 12:30 Background**

- Project Call / Purpose
- Other relevant projects and activities
- Collaborator Familiarisation

Presentations (20 mins each) by MRAG, MRC, ILM, The World Fish Centre, RFIS and FAO covering the following:

- Institutional/Programme/Project background
- Relevant experience/mandates, and details of projects/programmes
- Expectations (including outputs) from the project
- Contributions/inputs/activities to the project.

##### **14.00 – 17.30 Our proposal – Are we still happy with it?**

- Review of proposed project activities and outputs
  - Definitions, scope and targets
  - Proposed activities and outputs
- Comments from DFID
- Comments from collaborators
- Revisions / elaborations to project design/activities and outputs

## **Day 2.**

### **09:00-17.30 Refining, revising and detailing our activities and outputs**

Issues for consideration and discussion:

- Definitions, scope and targets
- Activities
  - Community consultation exercises
  - Self Assessment exercises
  - System Design (Workshop)
  - Post Workshop
  - Field Testing
  - System Evaluation Workshop
  - Promotion and dissemination
- Outputs
- Roles, responsibilities and activities of partners.
- Tables of contents for Interim (Review) and Final Technical Reports.
- Timetabling of activities and deliverables.

## **Day 3.**

### **09:00- 12:30 Refining, revising and detailing our activities and outputs (CONTINUED)**

#### **14:00-17:00 Budgets, contracts and other issues**

- Budget
- Letters of Agreement / Memoranda of Understanding
- Other Issues (STREAM collaboration...etc)
- Workshop report – format, content etc.



## **Annex 2 – Presentations by participants**



## Annex 3 DFID Comments

### Fisheries Data Collection and Sharing Mechanisms for (Co-) Management

Summary comments on the proposal

#### Strengths:

- There is no doubt that information/knowledge exchange and understanding best practice is a valid way forward towards more effective and sustainable management systems. Incentives certainly exist for fishers / poor NR users to engage in information exchange in support of rational self-determination.
- Co-management / devolved governance systems are important facets of sustainable livelihoods. Sharing information, knowledge and understanding on co-management is needed in order to instruct development effort.
- Demonstrates understanding of need to generate information at different management levels, but fails to get to grips with: the dynamic nature of this or the different information/knowledge types needed at these different levels (see below).

#### Weaknesses:

- Ambitious scope given the cost: maybe better to recognise that the funding will determine what is pragmatic and therefore cut down on expectations and (possibly) geographic coverage.
- Some hybridisation is apparent between two distinct concepts/methods: (a) “data collection” and (b) “knowledge exchange in support of [co-]management and livelihood outcomes”. Citing Coates 2002, the development problem (15 b) is stated to be the absolute weakness inherent in current data collection methods. Although the proposal gives due recognition to the fact that weak data is a by-product of weak management (institutions), it postulates that more and better data will translate into “improved understanding of fisheries dependent livelihood outcomes in response to inter- and intra-sectoral management and development activities at different special scales thereby providing knowledge to improve livelihoods of the poor” (15d – What the project will contribute to resolving the problem). It is true that current data collection (to meet FAO statutory obligations) has little relevance to management (Coates 2002). The point is that “data collection methodologies” as proposed can only translate into livelihoods outcomes IF wide-ranging factors are considered including (but not limited to) the following: political economy; local/traditional knowledge; NR values; markets; etc. etc. However, there is little discussion about the nature of or how to address these wider-ranging factors.
- Role of collaborators uncertain: funding for collaborators is very limited although there is an expectation that they will collaborate and contribute existing programme resources into this exercise. I would consider there should be a clearer explanation of how, and with what collaboration will take place.
- Stakeholder analysis not considered: given the complexity of the stakeholder systems (esp. in regions such as Mekong), a thorough stakeholder analysis as a preliminary exercise would seem to be called for / essential. For example, national institutional linkages are not clear – is this important at this stage? At least an approach describing a stakeholder analysis and action based on this should be described.
- Further, selection of co-management project sites not explained: it is not stated how project sites will be selected, which communities (“18+ fisher communities” are

mentioned but no further information is provided on these) and institutions are to participate, how selection is to take place, and/or whether this is in response to demand. If this is to draw on third party projects, then this should be clarified.

- Assessment of economic costs and benefits of methodologies not explicit: much is said about costs and benefits. The means by which these factors are to be evaluated is not mentioned in the proposal. Factors such as costs *to whom or what* and benefits *to whom or what* would need consideration. Cost and benefits also have several often conflicting dimensions – financial, social, economic and political; cross-sectoral issues also introduce further complexity.
- Downstream institutional and policy impacts unclear (and serendipitous?): the means by which impacts/outcomes will be achieved from the research are not clear. These appear to be subject to “success” or “failure” of the project’s product, terminating with a “Final Systems Evaluation Report”, publications, websites, etc. It would be preferable to see some articulation of a long-term vision of how national institutions (or indeed projects) would adopt and adapt the methods derived to ensure sustainability.
- Livelihood context of fisheries (and informational implications) not well elucidated: the proposal has weaknesses in considering the cross-cutting nature of livelihoods components; as noted above, there is the impression that fisheries data will be sufficient to address the stated development problem. Fisheries provides just one dimension within a complex array of other factors impinging on peoples’ livelihoods. A far wider range of issues than those mentioned need to be considered when proposing to develop data collection systems for effective management.
- General comment on FAO as a collaborator: danger of building on existing, conventional (weak) data collection paradigm (Coates’s paper is instructive): Coates’ was highly critical of FAO’s conventional supply-driven approach. While FAO increasingly recognises the shortcomings of their statistical systems (particularly their null value for management purposes), they are currently interested in addressing this. What needs to be done however, is so radically different from the current system, that any changes are likely to take years to implement. FAO-FIRI’s role as disseminators of project outputs should be based upon an understanding that FAO would commit to respond (institutionally) to any positive outputs (say through mobilising funds to develop the process). Development of appropriate dissemination pathways using local organizations (DoFs, NGOs, CBOs) is not clear. Links with regional bodies such as MRC and ICLARM are useful, but will not be sufficient to address processes at the community level unless these are implemented with existing projects and programmes (in which case there should be more description of these).
- Information generation (for better NR management) needs to consider both the dynamic context of livelihood systems and the differential value and relevance of information from various “ levels of management “ – e.g. for fishers/farmers need to consider aquatic resources info within wider livelihood (food security and vulnerability) context throughout the productive season (also noting longer term transitions and trends); however, for managers at more central locations (DoF), need to consider information relevant to a broader context of the political economy. The proposal is naïve in giving the impression that an information “set” will be identified through stakeholder interaction and then applied to effect better management. More appropriate perhaps would be the identification of a *process* for gradual improvement

of information systems. This would be based on synthesising elements of best practice (might be co-management, might be other forms of management), which embrace Govt policy as well as supporting local livelihood strategies. Checks and balances would need to be assessed covering econ, social, environmental and political considerations. A clear end-point would be community inclusion in management with explicit benefits derived for government.

*Specific and other more minor comments*

Purpose OVI - promotion of the system falls far short of uptake and adoption. This is weak. OVI referring to improved livelihoods in SE Asia and Africa –this is not a realistic or appropriate purpose-level OVI!

15b refers to fish providing inter alia “important sources of protein...” -it is widely recognised that fish provides food – protein is in fact often only one of several nutritional factors which help secure good nutrition – oils, minerals, micronutrients (especially DHA and unsaturated fatty acids) and energy are just as important.

115d – not sure how relevant highly migratory and straddling stocks is within this context. Surely this project cannot also tackle effective data collection for sustainable co-management beyond national EEZs!!

## Annex 4 System Requirements Reports

### *Identification of System Requirements*

#### *Report in Preparation for the Guidelines Development Workshop*

### Level 1- Fisher Communities

Draft Table of Contents

#### **Section A- Introduction**

Background

Purpose

Description of the fisher (management) community

#### **Section B - Methodologies**

Eg Stakeholder workshops, consultation exercises etc

Location, participants etc

#### **Section C - Results**

1. The Fisher Communities (management communities) and management structures.
  - 1.1. Location.
  - 1.2. Geographic Jurisdiction
  - 1.3. Size numbers of fishers and socio-economic profiles.
  - 1.4. The importance of fishing to livelihoods.
  - 1.5. Other attributes.
  - 1.6. Institutional structure and management roles and responsibilities.
  - 1.7. Institutional capacity and resources including rates of literacy.
  - 1.8. Links and relationships with other institutions and stakeholders including DoF, NGOs, regional bodies etc (management structure).
  - 1.9. Description of co-management arrangements and activities (if any)
2. The Fisheries.
  - 2.1. Resource and Environment.
    - 2.1.1. Stocks/fisheries and area of operation.
    - 2.1.2. Information on the environment.
    - 2.1.3. Environmental influences/threats to the resource (anthropogenic, climatic, other)
  - 2.2. The Fishery.
    - 2.2.1. Status and trends
    - 2.2.2. Numbers of fishers.
    - 2.2.3. Gear types.
    - 2.2.4. Seasonality.
    - 2.2.5. Fishing locations.
    - 2.2.6. Landing locations.
    - 2.2.7. Socio-economic categories of fisherman.
    - 2.2.8. Socio-economic value of fisheries
  - 2.3. The Fishers and other stakeholders.
  - 2.4. Management control measures and existing monitoring and control systems.
  - 2.5. Fish disposal (Fish disposition pathway diagram).
3. Identification of data and information requirements.
  - 3.1. Details of any management plans including enhancement activities.
  - 3.2. Management objectives.

- 3.3. Decision-making methods for each management objective (informal, formal, status monitoring, book keeping, formal models etc) and associated data and information requirements [minimum requirements, existing and desirable]
- 3.4. Data and information requirements to control and regulate fishery. [minimum requirements, existing and desirable]
- 3.5. Any other data needs and constraints
4. Identification of potentially appropriate data collection tools, sources and methods.
  - 4.1. Existing data collection sources, tools and methods (including strengths and weaknesses)
  - 4.2. Required accuracy and precision of data to support 3.3.- 3.4
  - 4.3. Potential improvements to existing system.
  - 4.4. Attitudes towards participatory data collection systems, required incentives etc.
  - 4.5. Attitudes of communities towards formal data collection methods.
5. Data storage and processing methods (if any).
  - 5.1. Existing and proposed
6. Identification of potentially appropriate data sharing mechanisms
  - 6.1. Opportunities for sharing
    - 6.1.1. What "external data and information" would the community be interested to receive or is currently receiving?
    - 6.1.2. What information would the community be willing to share or is currently sharing?
  - 6.2. Identification of requirements for sharing (giving and receiving) (for 6.1 consideration should be given to the following):
    - Format and required presentation
    - Standardisation
    - Cost
    - Timeliness
    - Accuracy and precision
    - Reliability/integrity
    - Trust and cooperation among institutions/stakeholders
    - Presentation and dissemination to foster improved access and value to managers.
7. Existing or previous activities to develop data collection and sharing systems. Include any problems, successes, solutions, required modifications, perceived solutions, uptake, cost, sustainability etc.
8. Details of involvement in related research, studies, programmes including references.

# ***Identification of System Requirements***

## ***Report in Preparation for the Guidelines Development Workshop***

### **Level 2- National Fisheries Departments (DoFs)**

#### Draft Table of Contents

1. Description of DoF and associated stakeholders (Management structure)
  - 1.1. Roles and responsibilities
  - 1.2. Institutional capacity and resources including manpower, finances etc.
  - 1.3. Links and relationships with other departments, organisations and institutions including local community-based or co-management stakeholders/institutions.
  - 1.4. Description of co-management arrangements and activities (if any)
2. The Fisheries.
  - 2.1. Resource and Environment.
    - 2.1.1. Stocks/fisheries and area of operation.
    - 2.1.2. Information on the environment.
  - 2.2. The Fishery. (or for each main fishery)
    - 2.2.1. Status and trends
    - 2.2.2. Numbers of fishers.
    - 2.2.3. Gear types.
    - 2.2.4. Seasonality.
    - 2.2.5. Fishing locations.
    - 2.2.6. Landing locations.
    - 2.2.7. Socio-economic categories of fisherman.
    - 2.2.8. Socio-economic value of fisheries
  - 2.3. The Fishers and other stakeholders.
  - 2.4. Management control measures and existing monitoring (data collection) and control (regulatory) systems.
  - 2.5. Fish disposal (Fish disposition pathway diagram).
3. Identification of data and information requirements.
  - 3.1. Details of any management plans
  - 3.2. Management objectives.
  - 3.3. Decision-making methods for each management objective (informal, formal, status monitoring, formal models etc) and associated data and information requirements [minimum requirements, existing, and desirable].
  - 3.4. Data and information requirements to control and regulate fishery. [minimum requirements, existing and desirable]
  - 3.5. Data and information requirements for policy and development planning. [minimum requirements, existing and desirable]
    - 3.5.1. Resource and fishery related
    - 3.5.2. Socio-economic information
    - 3.5.3. For MCS
  - 3.6. Data and information requirements for compliance with international management responsibilities
  - 3.7. Data and information requirements for international reporting responsibilities.
    - 3.7.1. FAO Regional Fishery Commission Requirements
    - 3.7.2. CITES
    - 3.7.3. Convention on Biological Diversity
  - 3.8. Data and information requirements to support community-based fisheries [minimum requirements, existing and desirable]



- 3.9. Data and information requirements to coordinate and evaluate community-based fishery management activities. [minimum requirements, existing and desirable]
- 3.10. Any other data needs and constraints
4. Identification of potentially appropriate data collection tools, sources and methods.
  - 4.1. Existing data collection sources, tools and methods (including strengths and weaknesses)
  - 4.2. Required accuracy and precision of data to support 3.3.- 3.9
  - 4.3. Potential improvements to existing systems.
  - 4.4. Alternative sources, and data collection tools (see Tables 9&10 in R7042 FTR or FAO 1999)
  - 4.5. Attitudes towards participatory data collection systems, required incentives etc.
  - 4.6. Use and potential of traditional knowledge
5. Data storage and processing methods (if any).
  - 5.1. Existing and proposed including software, hardware, data processing capacity.
6. Identification of potentially appropriate data sharing mechanisms.
  - 6.1. Channels of communication between and within fisheries institutions and stakeholders at different levels.
  - 6.2. Opportunities for sharing
    - 6.2.1. What "external data and information" would the DoF be interested to receive or is currently receiving? What are the sources?
    - 6.2.2. What information would the DoF be willing to share or is currently sharing?
  - 6.3. Incentives to share
    - 6.3.1. Reciprocation
    - 6.3.2. Paucity of resources
    - 6.3.3. Obligation
  - 6.4. Existing and proposed facilitation of information exchange among fisher communities.
  - 6.5. Identification of requirements for sharing (giving and receiving) (for 6.1 consideration should be given to the following):
    - Format and required presentation
    - Standardisation
    - Cost
    - Timeliness
    - Accuracy and precision
    - Reliability/integrity
    - Trust and cooperation among institutions/stakeholders
7. Existing or previous activities to develop data collection and sharing systems. Include any problems, successes, solutions, required modifications, perceived solutions, uptake, cost, sustainability etc.
8. Details of involvement in related research, studies, programmes including references.

**Source material available from:**

- **Udon workshop report**
- **FMSP livelihood review**
- **R7042**

# ***Identification of System Requirements***

## ***Report in Preparation for the Guidelines Development Workshop***

### **Level 3- Regional Management Bodies (SADC, MRC)**

#### Draft Table of Contents

1. Description of Regional Management Body
  - 1.1. Roles and responsibilities
  - 1.2. Institutional capacity and resources.
  - 1.3. Links and relationships with other departments, organisations and institutions.
  - 1.4. Description of co-management arrangements and activities (if any).
2. Data and information requirements to meet roles and responsibilities / mandates.  
[minimum requirements, existing and desirable]

#### Issues for consideration:

- Format and required presentation
  - Standardisation
  - Cost
  - Timeliness
  - Accuracy and precision
  - Reliability/integrity
3. Data and Information Sharing Systems/ Facilitating information exchange.
    - 3.1. Existing information sharing/exchange systems
    - 3.2. Potential systems
      - 3.2.1. Opportunities for sharing
        - Do any stakeholders share similar data and information requirements?
        - Channels of communication between and within fisheries institutions and stakeholders at different levels – Existing and potential.
    - 3.3. Identification of requirements for sharing (giving and receiving) among stakeholders

#### Consideration should be given to the following:

- Format and required presentation
  - Standardisation
  - Cost
  - Timeliness
  - Accuracy and precision
  - Reliability/integrity
  - Trust and cooperation among institutions/stakeholders
4. Details of involvement in related research, studies, programmes including references.

# Identification of System Requirements

## *Report in Preparation for the Guidelines Development Workshop*

### **Level 4- International Management Advisory Bodies (FAO)**

Draft Table of Contents (for change and elaboration)

1. Description of FAO
  - 1.1. Roles and responsibilities
  - 1.2. Institutional capacity and resources.
  - 1.3. Links and relationships with other departments, organisations and institutions.
2. Data and information requirements to meet roles and responsibilities or mandates.
3. Data and Information Sharing and Exchange Facilitation programmes and activities.
4. Technical advice on sampling strategies and data collection methodology.
  - 4.1. Resource Requirements

Can we undertake a number of exercises, preferably with real data from each participating DoF, to determine what data collection approaches are likely to be realistic and useful given available (and future?) manpower?

For example, how much manpower would be required to estimate say total inland catches within a country using standard catch assessment survey techniques with sufficient precision to be of value for active management purposes?

For example, what would be the required sample size to detect 5, 10, 15, 20% changes in say monthly CPUE (a proxy of abundance) given different assumptions about population (CPUE) variance? (CPUE data available by gear type, month and habitat exists for Bangladesh from FAP17 study).

- 4.2. Review of studies on the relative accuracy, precision, reliability and resource requirements of different data collection strategies/tools (eg CAS – [gear-based or FEU] vs fish consumption surveys).
5. Results and recommendations of relevant studies and programmes eg Udon Workshop.

## ***Identification of System Requirements***

### ***Report in Preparation for the Guidelines Development Workshop***

#### **MRAG Reviews**

Draft Table of Contents

1. Review of participatory methods for data collection.
2. Review of methods and systems for information exchange and sharing.
3. Review of potential sources of variation in system requirements at 4 management levels.
4. Synthesis of generic system requirements identified from R7042.
5. Review simple indicators for monitoring outcomes and explanatory factors affecting management performance at the local level.

Contributions where possible to above reviews drawing upon, R7042, R7834, FAO guides and FMSP livelihood reviews.