

Report of the

**FAO/WORLDFISH CENTER WORKSHOP ON INTERDISCIPLINARY
APPROACHES TO THE ASSESSMENT OF SMALL-SCALE FISHERIES**

Rome, 20–22 September 2005



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PREPARATION OF THIS DOCUMENT

This is the final report of the FAO/WorldFish Center Workshop on Interdisciplinary Approaches to the Assessment of Small-Scale Fisheries, which was held at FAO headquarters in Rome, Italy, from 20 to 22 September 2005. The Workshop was jointly organized and supported by the WorldFish Center (Penang, Malaysia) and FAO through its FishCode Programme, under its project for implementation of the FAO *Strategy for Improving Information on Status and Trends of Capture Fisheries*. Support for the “FishCode-STF Project” is provided through contributions to the FishCode Trust (MTF/GLO/125/MUL) by the governments of Norway, Japan and the United States of America.

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ABSTRACT

The Workshop on Interdisciplinary Approaches to the Assessment of Small-Scale Fisheries (Rome, 20–22 September 2005) was organized jointly by the WorldFish Center and FAO through its FishCode Programme as a first step in developing a collaborative project towards capacity building for small-scale fisheries assessment in developing countries. Participants represented various international and national agencies and academic institutions as well as private firms, and were invited on the basis of their extensive experience in small-scale fisheries either from a natural or social science background.

The Workshop addressed three main tasks through plenary and working group sessions: preliminary development of a framework for interdisciplinary assessment of small-scale fisheries; identification of appropriate approaches, methods and research needs to help fill small-scale fisheries information gaps; and preparation of an outline implementation strategy for a collaborative project on small-scale fisheries.

Key follow-up actions agreed by the Workshop were continued information exchange between participants via the Internet, including further feedback on the proposed project in capacity building, and circulation of a revised Concept Note on the project.

Distribution:

Participants in the Workshop
FAO Fisheries Officers, Regional and Subregional Offices

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Abbreviations

CCRF	Code of Conduct for Responsible fisheries
COFI	Committee on Fisheries
MAC	Marine Aquarium Council
MDG	Millennium Development Goals
PRA	Participatory Rural Assessment
PRS	Poverty Reduction Strategy
PRSP	Poverty Reduction Strategy Paper
SSF	Small-scale fisheries

BACKGROUND

1. The FAO/WorldFish Center Workshop on Interdisciplinary Approaches to the Assessment of Small-Scale Fisheries (SSF Assessment Workshop) was held at FAO headquarters in Rome, Italy, from 20 to 22 September 2005.
2. The Workshop was organized jointly by the WorldFish Center and FAO through its FishCode Programme, as a first step in a process to develop a collaborative project towards capacity building for small-scale fisheries assessment in developing countries. The overall aim of the project is to assess and enhance the contribution of small-scale fisheries to food security, poverty reduction and sustainable resource use.
3. As pointed out in the draft Workshop Concept Note shown in abridged form in Appendix A, there is a strong need to facilitate this process through the development of a comprehensive interdisciplinary approach to SSF assessment. Such an approach should be one that integrates understanding of the biological dynamics of fisheries (at both exploited species and ecosystem level) with their social, economic and institutional/governance aspects, nesting explicitly the assessment in the broader context in which small-scale fisheries operate.
4. The Workshop was thus specifically tasked to:
 - begin developing a framework for interdisciplinary assessment of SSF;
 - identify appropriate approaches, methods and research needs to help fill SSF information gaps;
 - discuss the draft concept note, the validity and feasibility of the proposal, and on this basis outline an implementation strategy for a collaborative project on SSF assessment capacity building, inviting other partners to join as appropriate.

OPENING SESSION

5. The SSF Assessment Workshop was attended by 43 participants representing various international and national agencies and academic institutions as well as private firms. Participants were invited on the basis of their extensive experience in small-scale fisheries either from a natural or social science background. A full list of participants is shown as Appendix B.
6. The Coordinator of the FAO FishCode Programme, Dr Eric Reynolds, called the Workshop to order and introduced agenda items for the first morning session. The full Workshop Agenda is shown as Appendix C.
7. Dr Stephen Hall, Director General of the WorldFish Center co-organizers of the Workshop, also offered welcoming remarks to participants.
8. Dr Serge Garcia, Director, Fishery Resources Division, Fisheries Department, FAO, Rome, then read a statement on behalf of Mr Ichiro Nomura, Assistant Director-General, FAO Fisheries Department. This statement is attached as Appendix D.
9. Dr Hall of the WorldFish Center next delivered a keynote presentation entitled “ ‘The wicked problem’ of managing small-scale fisheries in the developing world” in which he shared some thoughts on the broader question of SSF, explained the interests and initiatives of the Center with regard to SSF, and provided ideas about SSF assessment within the broader context in which SSF are situated.
10. A summary of Dr Hall’s presentation is shown as Appendix E.
11. Further keynote remarks on “The Small-Scale Fisheries Assessment Initiative” were then presented by Dr Garcia, who emphasized the need for a specific framework for the

assessment of SSF and the perspective and needs of a multi-year project. Dr Garcia particularly underlined the need for extra-budgetary funding to support the project effort, as well as the need for in-kind support from collaborating institutions (expert time, available methodologies, assistance in testing, etc.). He noted in this connection the interest in collaboration with the WorldFish Center/FAO initiative that has been expressed by the Marine Aquarium Council (MAC), which is already involved in the development and implementation of assessment methods for SSF linked to the international marine aquarium trade.

12. A summary of Dr Garcia's remarks is given in Appendix F.

13. The final presentation of the first morning session was given by Dr Daniela Kalikoski, FAO FishCode STF Project Consultant, who provided a summary of the draft Workshop Background Paper. The paper, entitled "Review of current approaches for assessment of small-scale fisheries," offered a brief review of frameworks for research, development and management of small-scale fisheries within which various disciplines undertake assessments. These include:

- conventional biological resource assessment;
- community-based management;
- co-management;
- the sustainable livelihood approach;
- the ecosystem approach to fisheries; and
- the "global environmental change and human security" approach.

14. Dr Gertjan DeGraaf, Senior Projects Management Officer, FAO FishCode Programme, briefed participants on objectives and procedures for the Workshop, stressing that the Agenda was organized around consideration of three major themes – namely:

- development of a framework for interdisciplinary assessment of small-scale fisheries;
- approaches and methods for interdisciplinary assessment of SSF: integration, constraints and research needs; and
- capacity building towards interdisciplinary assessment of small-scale fisheries in developing countries.

THEME ONE: DEVELOPMENT OF A FRAMEWORK FOR INTERDISCIPLINARY ASSESSMENT OF SMALL-SCALE FISHERIES

15. The Secretariat of the Workshop proposed to structure discussion within working groups around principles of assessment within three major domains – namely, "resource", "community" and "external environment. After an extensive discussion, it was decided instead to structure the meeting around the following overarching question: "What are the principles needed to inform an integrated assessment framework for SSF?"

16. Discussion in four separate working group sessions during the afternoon of Day One was guided by a series of subsidiary questions raised in plenary, as follows.

- How do we determine the purpose of a specific assessment? (What is it for? What development or management objectives are relevant?)
- How do we link assessment to a process of learning, and to the possible phasing of information requirements?
- What are the main factors to consider in selection of specific assessment methods (noting that the meeting was not intended to discuss the methods themselves in any depth)?

- What makes assessment of SSF different from assessment of industrial fisheries?
- What can we learn from other (non-fishery) small-scale natural resource based assessment activities?
- How can we assess SSF in the broader human development context?
- How do we ensure links between assessment and governance?

17. Working groups noted that in discussing the principles of improved assessments, a clear distinction should be made between one-off “diagnostic” and recurrent “on-going.” assessments. Distinctions between these two types are summarised in Table 1.

Table 1. Characteristics of assessment types

Diagnostic assessment	Ongoing assessment
<ul style="list-style-type: none"> ▪ event based / one-off snapshot of the situation (but may feed into / form basis of on-going assessments) ▪ should not be predictive 	<ul style="list-style-type: none"> ▪ part of a process ▪ iterative ▪ can be predictive
<ul style="list-style-type: none"> ▪ largely based on synthesizing existing information rather than collecting new data ▪ can be a re-assessment (for a new purpose/client) 	<ul style="list-style-type: none"> ▪ requires new set of data
<ul style="list-style-type: none"> ▪ helps define issues and options for action (e.g., management/ development interventions, achievement of Millennium Development Goals (MDGs)) – and subsequently helps define indicators of achievement 	<ul style="list-style-type: none"> ▪ monitors progress in implementing action ▪ provides feedback on adjustments of action needed to achieve aims
<ul style="list-style-type: none"> ▪ an initial, wide-ranging stock-taking to gain a broad understanding. ▪ must work within recognized limitations (e.g. human and financial resources) and focus on key / prioritized critical issues and assets (within this context, the assessment must be demand-driven and actor-based) 	<ul style="list-style-type: none"> ▪ focuses on pre-defined issues (since scope has already been defined)
<ul style="list-style-type: none"> ▪ limited scope for adaptive learning (but should not be overlooked) 	<ul style="list-style-type: none"> ▪ information feeds into adaptive learning processes
<ul style="list-style-type: none"> ▪ may be applied where rapid response is needed (e.g. disasters) 	

18. It was recognised that some principles for improved assessment were common to both diagnostic and ongoing types. Both should aim to:

- provide integrated, balanced, multidisciplinary and cross-sectoral information on SSF resources, institutions/governance, and socio-economic and ecological dimensions, including their externalities and vulnerabilities;
- be realistic in terms of and human and financial resource limitations;
- be demand-led, actor-driven¹ and problem oriented, as determined by assessment objectives;
- be participatory, involving local stakeholders in order to improve assessment quality and consensus; and
- be transparent in the provision and analysis of information, and understandable by the full range of stakeholders.

¹ “Actors” may include clients, beneficiaries and information providers

19. In addition to the general principles listed above, those specific to each type of assessment were also identified.
20. Diagnostic assessments should aim to:
- respond to specific needs in a timely fashion;
 - take historical context into account;
 - set the basis for informed choices by prioritizing issues and by providing options for different courses of action with their respective advantages and disadvantages;
 - be alert to opportunities that may arise to initiate longer term learning;
 - be aware of (evaluate) uncertainty; and
 - be aware of (take account of) bias.
21. Ongoing assessments should aim to:
- serve a specific objective, and provide a feedback mechanism to monitor implementation progress and allow for adaptive learning;
 - take account of issues related to the scale and boundaries of resources, ecosystems, communities and institutions;
 - capture historic and current information and identify future information needs;
 - capture inter- and intra-sectoral information and enable linkages across sectors;
 - recognize multiple livelihood dimensions; and
 - employ methods that allow for risk assessment and priority setting.
22. Poverty alleviation, food security and environmental sustainability are central issues in many developing countries, and figure among the globally agreed Millennium Development Goals (MDGs). The Workshop recognized that assessments should place emphasis on verifying the role of SSF in contributing to these goals.
23. It was strongly emphasized that, as SSF do not exist in isolation from industrial fisheries, nor from related sectors such as agriculture and tourism, assessment frameworks must be capable of capturing the wider contexts in which they operate.

THEME TWO: APPROACHES AND METHODS FOR INTERDISCIPLINARY ASSESSMENT OF SSF: INTEGRATION, CONSTRAINTS AND RESEARCH NEEDS

Identification of appropriate assessment methods

24. For consideration of Theme Two on the morning of Day Two, participants were divided into three parallel working groups, each of which were assigned the same two major tasks – namely:
- preliminary identification of possible assessment methods, giving due consideration to geographical scale (community to region) and thematic scope (narrow to broad); and
 - preliminary screening of SSF assessment methods appropriate for developing country applications from a technical, financial, institutional point of view.
25. In order to facilitate group discussion, the Secretariat provided Table 2 as a scope-scale matrix of assessment methods. Cells for which little or nothing could be entered indicate weaknesses or gaps and therefore a lack of appropriateness of the assessment method considered.

26. In reporting back to plenary, working groups pointed out that the matrix provided was difficult to employ because it was only two dimensional and could not accommodate the multi-dimensional requirements for SSF assessments. As a result, of the three groups, one did not complete any matrix, one provided separate matrices for biological assessments and socio-economic assessments (Appendix G) and one suggested that the matrix format be revised.

Table 2. Scope-scale matrix of assessment methods

Scope Scale	Narrow - Sector specific - Stock based	Intermediate - Fisheries & related livelihood - Multispecies	Broad - Multisector - Ecosystem
Micro - Community			
Meso - Local administrative unit - Province			
Macro - Country - Region			

27. While the working groups made progress in identifying an array of possible assessment methods, the second task of screening methods for appropriateness was not completed. However, it was remarked that most of the methods identified were very data intensive and costly, and therefore of limited utility for SSF assessment in developing countries.

28. Plenary discussion reflected on the value of the matrix approach as a means of pursuing Workshop objectives for identifying weaknesses or gaps in methods that needed to be pursued through research. It was felt that the approach had not explicitly provided a clear view of gaps, but had taken the group some way towards understanding the difficulties to be faced.

29. Discussion groups pointed out that some participatory rural appraisal (PRA) tools used for the collection of social data and information have also begun to be used in the biological fields. It was felt that this development should be further explored. Applicability of methods to SSF and Integration.

30. Based on the results of the morning session, participants were requested to discuss in their afternoon working groups the applicability of different “families” of methods to SSF and their technical strengths or weaknesses as well as their potential for integration. Discussion results were tabulated by each group and are consolidated in Table 3.

Table 3. Technical features of assessment methods

Methods	Purposes	Dimensions •Environmental (E) •Human (H) •Institutional (I)	Strengths	Weaknesses	Potential for integration
Catch and effort analysis	Status and trend of resources	E	Historical perspective	Data intensive	Yes, for economic analysis
Length frequency data analysis	Status and trend of stock	E	<ul style="list-style-type: none"> ▪ relatively simple ▪ user-friendly software 	<ul style="list-style-type: none"> ▪ only applied at stock level ▪ difficult to apply at multi-species level ▪ not specifically for SSF 	Can be used as input for broader bio-economic analysis
Participatory ID of resource indicators	Status and trend of resources				Yes, already in ParFish
Standardized resource surveys	<ul style="list-style-type: none"> ▪ trends ▪ baseline ▪ comparison 	E	<ul style="list-style-type: none"> ▪ lots of info allows comparison 	Expensive	Yes with economic assessment
Yield per recruit analysis/ analytical methods	<ul style="list-style-type: none"> ▪ ID reference points ▪ indicators of fishery status 	E	<ul style="list-style-type: none"> ▪ integrates information ▪ requires short data collection 	Assumptions	Yes with economics software available
Eco-system modelling (e.g. ECOPATH; & ECOSIM)	Understand current status of & interactions within ecosystem	E	<ul style="list-style-type: none"> ▪ visualizing the system and fisheries trends ▪ possible to identify options/scenarios ▪ information cumulative 	<ul style="list-style-type: none"> ▪ difficult to focus on SSF ▪ data intensive ▪ require well-trained person 	Can accommodate ecosystem aspects
Participatory habitat/resource mapping	ID critical habitats and fishing grounds	All	Cost effective	Subject to bias	Yes with resource surveys and institutional analysis
Cost & earning survey (fishing unit)	<ul style="list-style-type: none"> ▪ economics of operation ▪ distribution of benefit 	H	<ul style="list-style-type: none"> ▪ understanding of technological diversity ▪ can focus on different scale incld. SSF ▪ repeatable 	Time consuming	Yes – could capture traditional knowledge, fishing activities, species, etc.
Work history method	<ul style="list-style-type: none"> ▪ historical trends ▪ changes in practice/resource ▪ community ▪ perceptions ▪ social mobility 	All	<ul style="list-style-type: none"> ▪ giving voice ▪ context understand 	<ul style="list-style-type: none"> ▪ labour intensive ▪ anecdotal ▪ needs validation 	Yes with resource surveys and institutional analysis

Table 3. (cont.)

Methods	Purposes	Dimensions •Environmental (E) •Human (H) •Institutional (I)	Strengths	Weaknesses	Potential for integration
Stakeholder & gender analysis	<ul style="list-style-type: none"> ▪ social/power interaction ▪ social equitability ▪ decision-making influence 	H & I	<ul style="list-style-type: none"> ▪ participatory ▪ implicitly include gender ▪ can help to raise awareness 	<ul style="list-style-type: none"> ▪ based on perceptions ▪ subjectiveness ▪ can be difficult to identify stakeholders 	Yes – could capture other dimensions
Institutional mapping	<ul style="list-style-type: none"> ▪ understand society ▪ rules concerning resource ▪ power relationships 	I & H	Can initiate process for change	<ul style="list-style-type: none"> ▪ if ‘static’ misses real issues ▪ needs process 	Yes with economic surveys (note business/ management experience; forestry)
Socio-economic survey analysis	Improve understanding of livelihood dimensions	H & I	<ul style="list-style-type: none"> ▪ can determine poverty dimension ▪ holistic & multi-sectoral which fits SSF 	Time consuming	
Livelihood analysis	Improve understanding of livelihood dimensions	H & I	<ul style="list-style-type: none"> ▪ can determine poverty dimension ▪ holistic & multi-sectoral which fits SSF 	Highly qualitative and difficult for comparative analysis	
Socio-cultural survey	Improve understanding of community relationships and identities	H & I			
Policy analysis	Understand policy context (agenda setting, implementation, impacts)	I	<ul style="list-style-type: none"> ▪ can be desk-based ▪ can be cross-sectoral ▪ can be influential 	Difficult to capture informal policy	Yes – can be expanded to other sectors
Market analysis	-				

31. The nesting of analytical and data collection methods together into “families” presented problems. For example, livelihoods analysis was seen by some as a single method, and by others as a complex of several methods.

32. The fact that many methods could be applied at different levels of complexity presented another difficulty. The degree to which a participatory approach was used in applying a particular method, for instance, might influence the extent to which it could be integrated with others.

33. The question of what actually was meant by the term “integration” also proved troublesome. The term can be interpreted as “integration of methods” e.g. blending a biological and an economic method together into one single bio-economic method, using one integrated software. It could also be interpreted as “integration of outputs” e.g. using the two methods mentioned above concurrently but separately, considering jointly their outputs. Some

argued that the purpose of integration was simply to improve efficiency of assessment. The general agreement was that the assessment framework has to be “comprehensive”.

34. Further discussion on approaches to integration considered whether it should be used to compress the range of methods and particular indices into a few or even a single dimension. The danger of too much compression was flagged, as it may lead to overdependence on one or a few “integrated” indices to reflect very complex systems. The alternative was to view integration as leading to suites of complementary indicators that together provide a comprehensive picture of the status of the system in question.

35. The Day Two sessions ended with general agreement that there were significant issues associated with integrated assessment of SSF, and that these required in depth attention through the project proposed in the draft Workshop Concept Note.

THEME THREE: CAPACITY BUILDING TOWARDS INTERDISCIPLINARY ASSESSMENT OF SMALL-SCALE FISHERIES IN DEVELOPING COUNTRIES

36. On the morning of Day Three, the draft Concept Note prepared by FAO and WorldFish Center (Appendix A) was presented and discussed in some detail in plenary. A number of Workshop participants offered comments and suggestions on the proposal for a project to develop appropriate SSF assessment methods and to build individual and institutional capacity within developing countries for their effective utilization.

37. It was noted that the draft Concept Note should pay particular attention to the phasing of different activities. The work proposed has three major thrusts – namely (i) acquiring improved understanding of the complexities of SSF; (ii) raising awareness about the contributions of SSF; and (iii) a capacity-building agenda for SSF. These concerns are interrelated but need to be addressed in proper sequence.

38. It was reiterated by some participants that the exercise of developing an overall integrated assessment framework for SSF is not one that has to start from scratch. Also, more attention should be paid to existing experiences found outside fisheries, such as in forestry and agriculture, where similar integrated assessment questions have been confronted.

39. It was remarked that there would be a need to ensure legitimacy for the project at all levels by ensuring that the voices and perceptions of fishers themselves are heard and appreciated. In this respect the draft Concept Note needs to emphasize participatory aspects of the process more directly.

40. Participants further remarked that the geographical scale of proposed activities needed to be more clearly spelled out. It is not enough to refer to “West Africa,” for example. One would need to indicate specific levels at which capacity-building is intended – whether community, national or regional or some combination thereof.

41. Finally, it was stressed again that demonstrating the economic role of SSF is of great importance for drawing the attention of policy-makers. But further than this, the Concept Note needs to underline issues of resource depletion and fishing overcapacity. The proposed project should grapple with these two questions more explicitly and develop methods to understand their internal dynamics.

CLOSING SESSION

42. During the final session of the Workshop participants framed consensus on a set of summary and concluding statements, as well as on next steps to take.

Summary and conclusions

43. The Workshop agreed that small-scale fisheries contribute significantly to poverty alleviation and improvement of food security, and play an important role in sustainable use of aquatic resources. However, the Workshop expressed concern over the lack of methods to demonstrate this contribution.

44. The importance was stressed of clearly identifying who assessments are for (clients/beneficiaries) and what purpose they serve in the context of a larger development agenda for SSF.

45. The Workshop noted that it was useful to make a distinction between two major types of assessments – diagnostic and ongoing. Ongoing assessments are part of an iterative process that monitors progress in implementing action and feeds into an adaptive learning process, whereas diagnostic assessments are used more to provide a “snap shot” of a situation. More work has been done on diagnostic assessments of socio-economic dimensions as compared to environmental/resource dimensions. Diagnostic assessment should lead to ongoing assessment.

46. It is important to exert due efforts to explore the availability of existing data/information and also the possibility of coordinating with other ongoing initiatives before investing scarce resources on assessment. Such information can be fed into planned assessments, whether diagnostic or ongoing.

47. It is not possible to assess SSF in isolation from their broader context, including large scale fisheries and sectors outside of fisheries. Externalities must be considered and assessments must be based on more holistic and integrated analysis.

48. Principles that should underpin selection of diagnostic and ongoing assessment methods were formulated by the Workshop to guide analysis and development of methods for interdisciplinary assessment in future.

49. Participants noted that there are many frameworks for dealing with the large number of attributes of a small-scale fishery under assessment. One general approach is to group these frameworks in terms of major domains: i) Environmental/resources; ii) Human/developmental; and iii) Institutional/governance. This approach was used during the Workshop to categorize known methods as a means to identify their respective weaknesses as well as their potential for expanded application.

50. The Workshop agreed that there was a need for an integrated framework to facilitate comprehensive understanding of the issues, based on the most cost effective and efficient assessments.

51. A preliminary analysis of the strengths and weaknesses of known assessment methods showed that there were considerable limitations with respect to SSF applications in some, and especially for biological methods. There is a need to examine what is available from other sectors (e.g. agro-forestry and water resource management).

52. The Workshop suggested that some methods could be expanded to provide more efficient data collection for more comprehensive assessment of SSF, although it was noted that there were many constraints that would need to be addressed to make this a reality. It was also noted that data collected for one purpose could often be used to address other assessment needs.

53. The Workshop concluded that major constraints on the development of integrated assessments include the lack of:

- standard terminology to describe and categorize available methods;
- evaluation and adaptation of existing frameworks; and
- integration methods, in terms of both data collection and analyses.

54. The Workshop reviewed the proposed project to develop appropriate SSF assessment methods and build individual and institutional capacity within developing countries.

55. In general, the scope of the project proposed in the draft Concept Note needs to be more clearly restricted to the issue of SSF assessment, but at the same time should be placed in a broader development agenda context.

56. A number of specific suggestions for changes in the Concept Note for the project were provided. Participants noted the needs for the proposed project to:

- experiment with various approaches to achieve a particular objective;
- be more explicit in terms of geographical scales to be covered;
- provide more critical analysis and synthesis of information as a baseline for action, including previous assessments and lessons learnt;
- draw experience and expertise from outside of the fishery sector, e.g. forestry and agriculture;
- directly involve small-scale fishing communities in the process of developing assessment packages, especially in identifying major issues;
- identify more specifically the target beneficiaries for capacity building;
- re-examine the logic of the inventory component and consider, for example: i) the use a very simple framework so that all components of small-scale fisheries can be dealt with in a balanced way; and ii) development of frameworks based on major issues that need to be assessed, such as the relative contributions of SSF within the fisheries sector and beyond, and problems of resource depletion arising from degradation of habitats and overcapacity of small-scale fishing fleets.

Next steps

57. Participants agreed on the following list of steps that should be taken as follow up to the Workshop.

- Participants should provide the Secretariat with:
 - feedback on current activities related to SSF assessment (in writing);
 - information on related website and electronic information;
 - key contacts in their region and institutions;
 - written feedback/ideas to back up their verbal comments on the Concept Note; and
 - indications of interest for their involvement in future activities.
- The Secretariat should provide participants with the Workshop report as soon as possible;
- The FAO/WorldFish Center development team for the proposed project should revise the draft Concept Note and circulate it to participants for comments.