

CHAPTER 2

Background

In this chapter we summarise the context and external demand for the study based on donor priorities and past studies and also briefly review past literature. However, as a major part of the study activities was to review literature and make a comparative analysis between the three Southeast Asian countries and Bangladesh, this is summarised in more detail in the research activities and outputs chapters.

2.1 Demand for the Research in the Context of the Changing Development Agenda

Governments and international bodies have committed themselves to eliminating extreme poverty in the world, and have set themselves challenging targets to be achieved by 2015. Poverty here being defined as multidimensional both by reference to the Human Development Indices (HDIs) of UNDP, and by an income measure (less than a \$1 a day). The White Paper *Eliminating World Poverty: A Challenge for the 21st Century* was published in 1997 by the British government and commits it to meeting these targets. As a result all DFID funded activities -including research -have been reassessed to ensure a robust link with the department's poverty focus, and that they are 'fit for purpose' -that is deliver outputs which will contribute to achievement of the government's overall goal of poverty elimination.

Also the research programmes such as FMSP have reviewed their portfolios and developed a new strategic focus in order to increase their livelihoods and poverty focus. Fisheries research and development has been identified as an 'entry point' which can have a significant impact on poverty levels in those countries where there is a significant aquatic resource base and considerable numbers of poor people who are dependent upon the resource and who would be disproportionately disadvantaged by loss or mismanagement of the resource (Townsend, 1998). The project reported here has been commissioned under the new strategy and is intended to set a benchmark for further work that is commissioned under the programme.

Of course previous research and extension funded by DFID and other donor bodies has also had the goal of poverty elimination. However, experience in achieving this has been mixed. International indices indicate that there have been considerable advances in reducing the level of poverty in many countries as measured by the Human Development Indices (HDIs), but there remain a number which, for a complex combination of reasons, still have higher than average levels of poverty, including the nations covered by this study. Some of these do better on some HDIs (e.g. Vietnam on education and health indices), but still have large numbers who are on incomes below the poverty threshold.

While the reasons for poorer than expected impact of earlier research and development (r & d) initiatives are complex, international bodies, under the prompting of a host of individuals and civic bodies, have identified a number of areas which have been constraints to optimising impact. These constraints have primarily to do with the research and development process, and in particular a failure to develop partnerships between key players in the development process. The outcome of this assessment is that globally research and development processes and the organisations which deliver them are being restructured to address this failing.

In the research domain, partnership translates into two major areas, those upstream and those downstream of the research act. Thus the emphasis now is not on development

through a supply-side 'transfer of technology' model (e.g. of Green Revolution technologies) from richer to poorer countries, since this has frequently been inappropriate to the needs of the poor while being 'captured' by better resourced farmers. In short, 'trickle-down' has had disappointing impacts as regards poverty elimination.

By contrast, the emphasis now is on (a) understanding the context in which poor people make a living, and (b) ensuring the participation of the poor ('primary stakeholders') in identifying their needs and priorities, and contributing to demand-led technology development and adaptation. As DFID (1998) states, "the application of various participatory and associated approaches to research design can be an important contribution to enhancing the relevance of research interventions. Interaction with target groups and/or beneficiaries can help to ensure research "deliverables" are demand-led and can generate an empirical basis for the research programmes. This is in contrast to decisions being led by contemporary fashion or even the idiosyncrasies of scientists".

This knowledge-generation process requires the identification and targeting of the groups of poor ('primary stakeholders') on which one wishes to have a development impact, and the working in partnership with them to identify their needs and develop technologies and institutions, which they can adopt. Sustainable Livelihoods Approaches (SLA) and Participatory Rural Appraisal (PRA) tools have been developed to assist with this understanding and eliciting of demand.

The Sustainable Livelihoods Approach stresses the need to take a holistic approach, while in systems research 'everything is connected.' This point is well made in a DFID review of its Renewable Natural Resources Research Strategy (RNRRS) (DFID 1998) which notes that, until recently research was assumed to be of relevance to development simply because a development problem (e.g. an agricultural pest) was perceived as a constraint to production, while today most would agree that research should not be defined solely by the researcher's perceptions of constraints to development. 'In contrast to historic practice, most contemporary planning tools enable managers to consider the relevance of research' (DFID 1998).

In sum, while a holistic sustainable livelihoods analysis can be an invaluable basis for design, it should lead to focus 'entry points' for interventions. In commissioning this project, DFID has identified the inland fisheries sector as a valid entry point through which it can make a difference to the livelihoods and well-being of poor people in Bangladesh and Southeast Asia. To achieve this, what is sought is a better understanding of livelihoods associated with inland fisheries resources and an indication of the key constraints to improved livelihood development. We therefore have tried to be careful in establishing the boundaries for the research, while drawing out the relationships with other sectors - since livelihoods are made up of a range of strategies and people think holistically (Ellis 1998). In brief, we need to take a focused *systemic* (or holistic) approach rather than trying to model whole *systems* (DFID 2001).

On the upstream side, a similar lack of partnership with those bodies who might distribute the new technologies and provide support to enable their optimum uptake has been identified as a key constraint to overcoming scale issues - the constraints to scaling up the potential impact of technologies developed from site-specific research. "Without scaling up, any benefits for the poor will remain restricted to the few, may not be sustainable and may be insufficiently noticeable to register with policy-makers and donors" (DFID 2001).

Yet historically, and despite successes by localised civil society bodies, research and development have tended to be separated at a high level. Research might develop new demand-led technologies, but these were then handed over to other bodies to further adapt and distribute, and without these bodies being involved in the rationale for addressing the

needs of particular population groups, in identifying the needs of these groups, or in developing technologies for them. As such these bodies also failed to adopt research products for up-scaling, because, amongst other reasons, they did not see them as being relevant to their needs.

Thus a lack of ownership by governments and their extension agencies has been identified as a key constraint to the wider uptake of research products and the achievement of optimum impact, and measures are being taken to address these failings.

The new approach is most clearly demonstrated in what are known as Sector-Wide Approaches (SWAs) which have been developed as an alternative to the fragmented portfolios of projects historically favoured by donors but which are now recognised as having made it difficult for partner governments to manage aid flows effectively, prioritise spending and 'buy in' to the process. As Akroyd and Duncan note (1998) "Local commitment and ownership of the strategy process, as well as identification of beneficiary priorities are critical". The principles underlying SWAs have more recently been developed by the World Bank's through its development of Poverty Reduction Strategy Papers (PRSPs), where the stress is on partnership, participation, and ownership not only by partner governments by all parties to the country strategy. The origins of the PRSP initiative reflects a combination of (a) disappointment with poverty-reduction performance in the most aid-dependent countries in the last 20 years, and (b) growing recognition of the importance of the national policy context for aid effectiveness (ODI 2001).

In sum, the emphasis today is on working in partnership with those agencies ('secondary stakeholders'), who can have a significant influence on scaling up the delivery of appropriate technologies and enabling institutional frameworks to meet the needs of the poor - that is on working with government extension agencies, civil society and the private sector. Given the experience of market failure in service delivery to poor people, developing partnerships with government extension agencies and civil society is particularly important.

Given the international targets, donors are concerned to assess the impact of programmes and projects on poverty elimination. However, whereas a development intervention can normally be expected to have a determinate impact within a specified time-frame, it is unrealistic to expect this of research projects. Thus 'systems research must be evaluated not in terms of its immediate developmental impact but in terms of its impact on the thinking, policy and practice of development agencies at all levels (DFID 2001).

In terms of project and programme research the message is now very clear. We cannot just hand over research products to third parties. We now have to actively work with those whom we identify as major 'uptake pathways' in order to get them, as partners, to contribute to the research, develop a sense of ownership of the research products and 'buy-in' to their scaling-up. This is not just a matter of leveraging resources from other sectors, but of ensuring the longer term viability (or sustainability) of the research products as relevant and useful to poverty-reducing interventions. Otherwise, research products will remain gathering dust on the shelf.

2.2 Context of Research Demand in the Target Countries

Information on fisheries resources in Bangladesh and S.E. Asia is fragmented and has not taken account of poor people and their livelihoods. Research has been supply-led, resulting in limited uptake and gains for the non-poor. Often decisions are based on national level priorities overlooking the needs of local people, especially the poor, and thus posing a severe threat to local livelihood assets including fisheries. The development issues in the

two river basins are similar, and fisheries are a vital source of food and income for poor people. Comparative analysis offers the opportunity to learn from differences in institutional arrangements at local and regional levels, and from differences in dependence on fisheries as a source of livelihood, to help guide future development and research.

In this project, stakeholders prioritised constraints and identified possible research priorities through consultations with categories of poor people, other aquatic resource users, and with other organisations. This information matched against a classification and synthesis of fisheries resources and research and identified critical areas and researchable problems requiring further study. It evaluated the impact of relaxing key constraints for the poor.

The role of aquatic resources in rural livelihoods is characterised by diversity in the resource, habitat and environment, and in the resource users and the ways in which they exploit these resources (Townsend in Carney 1998). Yet historically, strategies to improve management of the fisheries sector have focused on the resources and on supply-side solutions. Understanding these natural resources is well advanced, but opportunities and constraints have largely been identified by fisheries experts. Difficulties with this approach have included variable uptake by target beneficiaries, the capture of benefits by non-poor with the resources to invest in new technologies, and an increasing gap between rich and poor.

With international agencies and governments now focused on pro-poor growth and on the contribution that the fisheries sector can make to overall poverty reduction, there is a need to ensure that management solutions clearly address the needs of the poor. Recent World Bank participatory poverty assessments (e.g. 'Vietnam: Voices of the Poor') have highlighted the livelihood problems, and their causes, that the poor face. However, the poor are not a homogeneous group, they follow diverse and varied strategies, so there is a need to more clearly identify stakeholders involved in the fisheries sector, to understand their needs and the socio-economic context in which they make a living, and to design solutions accordingly. This means consulting not only the poor involved in fisheries, but also secondary stakeholders.

Within all the focus countries, DFID is adopting a rural livelihoods strategy for the sector, which creates a demand for more livelihood oriented research and for information on the role of fisheries in the livelihoods of poor people (see Country Strategy Papers). In the Mekong region there are changes that give greater emphasis to fishing communities and the poor, for example the policy shift in Cambodia towards community based fisheries, to support this research needs to be based on the links between fisheries and the livelihoods of poor people.

There is a demand from donors for better information on the livelihoods of the rural poor and on the needs of the poor as articulated by themselves. Increasingly there is quantitative information on the dimensions of poverty in the countries of geographic focus, and also qualitative information (e.g. in The World Bank's *Voices of the Poor*) as the poor themselves articulate the dimensions of their poverty and their particular livelihood needs (see Section 3 Scientific Background of Project Memorandum). However, the *Country Strategy Paper: Bangladesh 1998*, for example, notes that DFID will 'continue to give priority to the livelihoods of the rural poor, enhancing their access to technologies and land and water resources', but that a more detailed understanding of poverty and the needs of the poor is needed if more effective programmes are to be developed. Much work has been done on understanding the dimensions of poverty and the livelihoods of the poor in Bangladesh since the *Country Strategy Paper 1998* was written and GoB, DFID and its partners are pushing ahead with a number of initiatives in the inland fisheries sector. However, a better targeting of these initiatives on the needs of the poor who have fishing as a significant livelihood strategy would be assisted by outputs from the current project

The *Country Strategy paper: Cambodia 2000* notes that increased investment in the rural areas rather than in the capital Phnom Penh is needed, and that, in order for this to be effective in eliminating poverty, better understanding of rural livelihoods is a priority, while poverty elimination means working with poor people. It further notes that there is a lack of information on rural Cambodia and that DFID will have to conduct its own strategic studies to help shape thinking and project identification.

The *Annual Plan and Performance Review 2001 (of the Vietnam Country Strategy Paper 1998)*, notes that the latter has 'a greater understanding of the causes, characteristics and consequences of poverty by government and donors' as one of its objectives, and that such understanding would have a significant input into the implementation of the Government of Vietnam's and donors' developing poverty reduction strategy. As in Bangladesh, there has been much work over the past few years in collecting quantitative and qualitative information on poverty and the livelihoods of the poor, but there still remains the need to relate this more effectively to the resource base and the identification of key constraints and opportunities.

2.3 Earlier Work under the FMSP

A considerable amount of work has been done under the FMSP to develop new knowledge which is relevant to both inland and marine fisheries management systems in various parts of the world (see FMSP Indicative Logical Framework 2001-2005). However, a number of comments can be made in relation to the current project with regard to the programme so far.

2.3.1 Limited coverage

The completed projects commissioned under the earlier FMSP (and under other NRSP and bilateral programmes) which are based on the target countries are limited in number. There are far more for Bangladesh than for the target SE Asian countries. New knowledge developed through earlier research in other countries may of course be relevant to the current geographic focus, but will need to be adapted to take account of these countries' socio-economic, institutional and regulatory environments, the existing knowledge, livelihood strategies and capacities of local people, and regional and global factors that impinge upon their livelihoods.

2.3.2 Science rather than livelihoods focus

Many of the earlier FMSP projects model the management of aquatic resources from the perspective of system's managers – that is from the perspective of secondary stakeholders – those who are situated at the macro- and meso-level and are particularly concerned with the making of policy and the regulation of fishing effort in order to ensure sustainability of the resources while achieving optimum economic value from them. In order to do this, there has been considerable investment in research to better understand the dynamics of what are complex biophysical and multi-species systems, and on developing management information systems, protocols and support to fisheries extension agencies for governing the exploitation of these resources. There has been little work so far in relation to inland fisheries that directly addresses the livelihood needs of identified groups of poor fishers. (There is more in relation to aquaculture than capture fisheries, but it may be asked whether those who can afford to invest in aquaculture are amongst the poorest in their communities, or whether the latter more frequently exploit open water-bodies).

Thus the emphasis under the earlier FMSP has been on the impact of fishing effort and the management (or not) of this impact on fish stocks and on species diversity, rather than on

the place of aquatic resources in the livelihoods of population groups with 'different portfolios of livelihood strategies' (to use Ellis' phrase, 1998). Two recent projects in Bangladesh (R6756 and R7562) under the LWI production system of the NRSP took greater account of the differences in livelihoods of groups exploiting a range of natural resources on the Bangladesh floodplains (see Box 2.1). Taking a systems approach, both projects characterised different livelihood portfolios, the interdependencies between livelihoods, and present the prioritised problems which representatives of different groups face in their livelihoods. Generally systems approaches have considered impacts at the ecosystems and production system level, rather than the household level. Consideration of poverty elimination as well as sustainability forces us to consider this at the household and intra-household level. (The Sustainable Livelihoods Framework is the most obvious manifestation of this systems approach at the household level).

Box 2.1

R6756 'Investigation of livelihood strategies and resource use patterns in floodplain production systems based on rice and fish in Bangladesh. Phase II.' 01/11/1996 - 01/02/2000. Country: Bangladesh.

The interactions in floodplain production systems are both ecological and socio-economic and neither feature as priority considerations in the majority of interventions on the floodplains. In relation to research, the problem is one of a strongly commodity-focused national research programme driven by top-down concerns and technology. The NARS thus largely neglects low resource-level producers and their livelihood systems and has made little progress on elucidating the knowledge base for farmers' decision making. Government planning has demonstrated a similarly poor comprehension of subsistence livelihood systems and cross-sectoral issues, and the evidence for this comes from the implementation of flood control measures. These have met their principal aim of increasing food-grain self-sufficiency, but only at the expense of impeding fish migration and reducing fish production, thereby particularly affecting the landless. That such technological interventions have succeeded in intensifying agriculture and increasing food grain production is recognised, however the concern is that they have done so without due consideration of the impact on small farmers and landless floodplain dwellers, who have thus been disadvantaged. The project addressed the lack of a holistic understanding of production strategies on floodplains in Bangladesh, and highlighted the need for, and benefits of, understanding the bio-physical and socio-cultural framework of production constraints.

R7562 'Methods for consensus building for management of common property resources.' 15/02/2000 - 31/03/2001. Country: Bangladesh

Approaches to help those households who depend heavily on inland open water (CPR) fisheries have traditionally focussed on increasing the productivity of the fishery, ie: raising the stock of natural capital. Thus, the Department of Fisheries presently has a strong focus on the biology and ecology of commercially and artisanally exploited species, while their extension service has primarily focussed on technical interventions. Floodplain stocking has been one approach used, but research shows that this is likely to affect poor fishers negatively, and aggravate their lack of access to the fishery. Other approaches included declaring fish sanctuaries, operating closed seasons and gear restrictions, but where directly imposed from above these measures have been difficult to enforce, and had low compliance. Targeting fishery leases at fishers failed in the past, as fisher co-operatives are often funded by moneylenders and de facto leaseholders. By contrast, local conservation measures taken up by fisher communities and habitat improvement have succeeded in improving productivity in a few pilot locations, but have not been possible in other locations, where there have been social tensions. Sustainable livelihoods analysis has shown that traditional fishers view poor access to the fishery as their key constraint, with trends in declining stocks as the next most important constraint. Sustainable change in management of open water CPR fisheries is therefore dependent upon building social capital to create greater cohesiveness, trust and common purpose between stakeholders, that is to bring about change in the local transforming processes (local rules/institutions) that influence access to the CPR, and to achieve sustainable fisheries. This project developed a method for participatory action plan development which identifies and builds on problems and solutions common to different stakeholders.

(From NARSIS database).

However, even these two projects, while they took a livelihoods approach and point the way forward for dealing with constraints to the livelihoods of the poor, only tangentially dealt with explicit problems raised by them. Indeed the Participatory Action Plan Development method developed and tested under R7562 takes a step back to consider what resource-use conflicts there might be between groups with different livelihood portfolios and to develop inclusive procedures for managing such conflicts at the community level. Since the research was generated by donor concern for the development of community-based natural resources

management and the global trend towards devolved governance, project outcomes can be seen as driven as much by the discourse on sustainability noted above, as by one on needs-based poverty elimination.

Two other recent projects, one under the LWI programme and the other under the FMSP sought (a) to develop a framework for evaluating the impacts on livelihoods of strategic policy measures concerning natural resources, and (b) develop a multivariate analysis tool to assist in the development of strategies for the management of capture fisheries important to poor people (see Box 2.2). Both these projects included Bangladesh as a country of geographic focus for the research, and were explicit in their use of a pro-poor and livelihoods approaches in guiding their analyses and development of methodologies. However, they have limited scope themselves to undertake a detailed characterisation of the different livelihoods and the vulnerability contexts for the poor in the countries under study. Both were also primarily concerned with developing models for assisting fisheries management agencies with benefits accruing to the poor as a consequence of pro-poor management actions by these agencies rather than targeting the poor directly

Box 2.2

R7868 Maximisation of joint benefits from multiple resource use in Bangladeshi floodplains: 15/11/2000 - 15/11/2001 Countries: Bangladesh

Traditional development planning, relating to Bangladeshi floodplain land use, has promoted agricultural production at the expense of floodplain fisheries. This strategy, manifest in the continued efforts to erect flood control structures to enable better crop production, has endangered the livelihoods of large numbers of poor households that depend on floodplain fisheries for income and nutrition. Doubtless, this strategy has led to the realisation of the agricultural self-sufficiency goal, inherent in the traditional planning approach. However, an estimated 73% of (predominantly poor) rural households in Bangladesh are at least partially dependent on fish capture from river floodplains and beels for their livelihoods and nutrition. The erosion of the floodplain as a fishing resource thus cuts away at their safety-net. The hydrological planning failure is one example of how narrowly focussed development activity can exacerbate the living conditions of poor households. This also extends to other developmental activities in floodplains. For instance, stocking floodplain waterbodies with a commercially attractive species of fish, often leads to decline in stocks of indigenous species that are typically harvested by poorer households.

Political, legal and socio-economic institutions in rural Bangladesh are often geared towards assisting households at the wealthier end of the spectrum, resulting in a continuous marginalisation of poorer households over time. This becomes especially critical where there is a direct conflict of interest between wealthier and poorer households on a floodplain. For instance, wealthier households may favour drainage of beel water to provide irrigation for crops, which affects the fish stock upon which poorer households are dependent. The study has modelled the potential gains from reducing irrigation abstraction to protect dry season water for overwintering fish, supported by crop diversification to maximise economic returns from water. The findings indicate that current project strategies of helping communities set aside fish sanctuaries are appropriate, and that in the order of 30% of normal dry season water areas should be maintained as fish sanctuaries and not drained out for agriculture.

R7834 Interdisciplinary multivariate analysis (IMA) for adaptive co-management 01/10/2000 - 30/09/2001. Countries: multiple including Bangladesh

Until recently, artisanal fisheries management has tended to focus upon maximising resource output using a suite of technical operational rules or regulations selected on the basis of deterministic (single-species) biological model-based predictions, set and enforced by a centralised (government) administrative authority. By largely ignoring important (dynamic) elements of livelihood assets, strategies, transforming structures, processes, the external environment, and other factors that affect livelihood outcomes, this paradigm has often failed to co-ordinate and restrain resource users, leading to depleted resources, inequity and conflict. This paradigm failure is particularly prevalent in the developing world; commonly exacerbated by the state's paucity of resources and institutional capacity to conduct (and interpret) formal assessments, and monitor and enforce rules and regulations among the widely dispersed resource users. Moreover, the technical management models employed to guide decision-making processes are usually inadequate to capture the dynamic complexity of the fisheries. Adaptive co-management is increasingly being seen as an effective strategy to redress these paradigm failures and thereby facilitate improved sustainable livelihoods.

ICLARM's institutional analysis research framework, which provides a useful model for studying fisheries-related livelihoods, was used and statistical analysis compared the outcomes of different co-management interventions and arrangements against a wide range of possible contributing factors.

From NARSIS database).

Despite earlier 'commodity-based' research of the FMSP not being placed in the context of poor people's livelihoods, it nevertheless remains of great value for the strategic management of natural resources. However, it needs to be understood within the context of a dominant discourse on natural resource conservation. Since the 1980's and especially since the 1992 Earth Summit in Rio, government agencies have primarily focused on environmental conservation and sustainable natural resource use due to worries about their depletion through over-exploitation. This focus on the environment has predominated despite the fact that the Agenda 21 section of the UNCED document stated that sustainable livelihoods could serve as an integrating factor that allows policies to address development, sustainable resource management and poverty eradication simultaneously. The concern with sustainability is laudable, but until recently this has meant that initiatives targeting the poorest Less Developed Countries (LDCs) have been overshadowed by initiatives to protect the environment. Only since the World Summit for Social Development at Copenhagen (1995), has there been a global consensus on the need to address poverty, and an acceptance that the depletion of natural resources can also be due to poverty and the lack of alternatives for poor people as well as to failures in the governance of natural resource use.

There is thus a need to understand the nature of poverty in the target geographical countries, and the socio-economic systems in which natural resource use is set. This requires the generation of new knowledge on where and to what extent people are dependant upon natural resources such as fisheries, their economic status, the important factors which impact upon their livelihoods, their vulnerability in relation to loss or mismanagement of these resources, and also information about their needs and goals as expressed by themselves (see in this respect un Nabi et al 1999, Narayan et al 2000).

2.3.3 Social complexity in fisheries

Projects under the earlier FMSP have paid insufficient attention to the complexity of the social – to the socio-economic characteristics of the human populations exploiting aquatic resources, and in particular to the different needs, perspectives and objectives of different population groups (as defined by age, gender, and socio-economic status) upon whom policy for the governance of resource exploitation impacts differentially. Historically, formal economic definitions of absolute poverty have led to whole populations being classified as poor or vulnerable, with development policy and interventions treating them as a homogeneous target group. Supply-side development policy and practice in particular have frequently assumed that all NR users in a country or region are basically alike and that one policy instrument/ technology will fit all. But as Chambers has pointed out (e.g. 1983, 1995, this can lead to biases in the development of policy instruments/ technology which, while they may suite the better-off, may be inappropriate to the needs of the resource-poor. Consequently, until quite recently, there has been a tendency to design and evaluate development interventions on the basis of net returns, many of which have been preferentially captured by, or accrued to, the wealthier members of communities. Only recently with the wide acceptance of the international development target on the eradication of poverty set forth in the 1995 Copenhagen Declaration, has there has been a shift in focus by governments to interventions that target the poorest. This has inherently led to the need for a socially differentiated approach - that is the disaggregation of populations according to a variety of indicators such as gender, economic status, food insecurity, etc., so that those who are deficient in respect of any may be identified and targeted.¹

¹ Defining and measuring poverty is difficult, and there is continuing debate about its meaning and measurement (see Ravallion 1992, UNDP 1997, Maxwell 1999). Historically definitions, measurements and policy recommendations which flow from them have focused on economic well-being. Increasingly composite measures have been constructed (e.g. the World Bank's Priority Poverty Indicators (PPI) and UNDP's Human Poverty Index (HPI)) by reason that 'poverty is too complex to be reduced to a single dimension' (UNDP 1997).

Current development initiatives accept that, while whole populations may be classified as poor according to formal income-based measures, there can nevertheless be large differences within populations when measured on relative as opposed to absolute scales. The one-dimensional measure of poverty which characterises people as poor according to a fixed point on an income scale (the poverty line), has largely been supplemented by country-specific poverty lines, and by criteria which identify 'quality of life', 'well-being', 'vulnerability' and/or 'social exclusion' according to a bundle of characteristics of both a formal and more informal/local nature (see de Haan 1999, Maxwell 1999, Ravallion 1992), and has led to a concern with livelihood security.

The design of interventions appropriate to their social context and client need is considerably helped by understanding the local character and determinants of poverty, well-being and vulnerability within populations and between social groups, and is a prime reason for the disaggregation of a population for data collection purposes. On the basis of the proposed research under the current project, technical outputs (including both policy instruments and extension packages) under the earlier and the current FMSP should make a better contribution to DFID's primary goal of poverty elimination.

2.3.4 Beneficiary targeting and poverty levels

Since earlier FMSP projects have paid insufficient attention to the complexity of the social, there has been insufficient understanding as to who the ultimate beneficiaries (primary stakeholders) of pro-poor research should be, and where they are to be found. While indices are a matter of debate, most analysts agree on common broad characteristics of the poor.

Regional and country analyses suggest that 39% of all people living on less than \$1 per day are in South Asia (DFID 1997). In 1999 36% of Cambodia's population of 11.8m, 37% of Vietnam's 77.5m, and 46% of Laos' 5.1m were below national poverty lines (World Bank 2000; DFID 2000). While Human Development Indicators (HDIs) are mixed for the individual countries, and while the proportion of national populations in poverty may be dropping, high annual average population growth rates mean that actual numbers of those who are poor are increasing. In Bangladesh, even though on some measures there has been a reduction in poverty over the past 20 years (see Greeley 2000)², on other measures around 50% of Bangladesh's 125 million people are poor (measured by calorific intake or cost of basic needs approaches), with over half of these in extreme poverty, while 95% of female-headed households are poor (Rahman and Hossain 1995; DFID 1998b). In Vietnam, World Bank figures suggest the number below the poverty line has dropped from 58% in 1992 to 37% in 1997, while the number below a 'food poverty line' (which is lower) has also declined from 25% to 15% (World Bank 2000). In Cambodia, while the rate of poverty has remained constant at 36%, indications are that access to land and common property resources are diminishing and that landlessness and indebtedness are rising (DFID 2001).

In all four countries the incidence of poverty and its rate of reduction varies considerably across regions within countries, while both quantitative and qualitative data indicate that the poverty status of households fluctuates over time due to their vulnerability to household-specific and community-wide shocks and crises and dependence on income sources which are highly variable (see for example Rahman and Hossain 1995; World Bank 1999).

The greater proportion of poor people are rural dwellers. In world terms, close to 1 billion people live in poverty in rural areas and, while urban poverty is a growing phenomenon, the

² Greeley (2000) suggests that over the past 20 years the proportion of households below the poverty line has fallen from 80% to 37% in 1996. However, the World Bank is not so sanguine about this progress continuing, noting that 'Bangladesh is trapped in a low growth cycle' and current trends hold out little hope of a brighter future.'

rural poor still account for over 80% of the total number of poor (see Jazairy *et al* 1995). In Bangladesh over 75% of the population live in the rural areas, with 90% those classified as poor living there. In Vietnam poverty remains largely a rural phenomenon, with 45% of the rural population of 70% of the total population below the poverty line. In Cambodia 84% of the population is rural, and in Laos 77%. In all four countries the rural poor are predominantly farmers and fishers, though as previously noted the poorest may in fact have limited access to natural resources. For those with access to natural resources, the risk of failure associated with on-farm investment can deter households from expanding their economic base.

The greater proportion of the poor are women. As Mikkelsen notes (1995: 152), historically 'indicative strategies on poverty have not been gender disaggregated and women's heavier exposure to poverty has been disguised'. Yet poverty studies which apply gender disaggregated analysis (as in intra-household studies) demonstrate that women more than men are subject to relative as well as absolute poverty (see e.g. Wignaraja 1990; Moser 1989; 1993). Rural women in developing countries are among the poorest and most vulnerable people in the world and the incidence of their poverty is increasing (Jazairy *et al* 1995). In Bangladesh alone there are over 45 million - almost doubling from 24 million in 1965. In all four countries, households which are female-headed are generally poorer than others.

2.4 Sustainable Livelihoods and the Role of the Study

These figures alone suggest that if interventions are to have any significant effect in reducing global poverty by the target date of 2015, then the above three factors must be prioritised in any research seeking an input to such interventions. Further, the 1997 UK Government White Paper on International Development commits DFID to promoting sustainable livelihoods and to protecting and improving the management of the natural and physical environment. Mechanisms for doing so are contained in the different DFID programmes, and through the common adoption of a sustainable livelihoods approach (see Carney 1998). Drawing on a number of influences (e.g. Cernea 1985, 1992), this approach takes peoples' own interpretations of and priorities for their livelihoods as its starting point, while the mapping of the different capital assets on which people draw to build their livelihoods, and investigation of how transforming structures, institutions and processes influence how endowments are (or are not) turned into entitlements (see Leach, Mearns and Scoones 1997), forces researchers 'to think holistically rather than sectorally about the basis of livelihoods' (Carney 1998:7). From this livelihoods analysis, it has been suggested that DFID can make a particularly positive contribution to improving livelihood outcomes for poor people by (a) contributing to the robustness of and increasing the opportunities available to individuals/ groups/ communities by building up their asset base; and by (b) helping ensure that the structures, institutions and processes which define people's options are working in favour of the poor (Carney 1998:12).

Sustainable rural livelihoods: What contribution can we make? (Carney 1998) includes chapters (including one on aquatic resources) which sketch out in a general way the role that different natural resources play in the livelihoods of different groups of poor, and the kinds of structures, institutions and processes which impact on their access to and exploitation of these resources. The implicit question here, and as contained in the revised FMSP, is what contribution can the programme make to improving livelihood outcomes for poor people dependent upon inland capture/ enhancement fisheries in the target countries. To answer this, as the current call identifies, it is necessary to develop a better understanding of livelihoods associated with inland fisheries resources in these countries, and identify the key constraints to improved livelihoods development, and the most critical researchable problems. Our initial review indicates that there is already a substantial literature in some

countries on poverty, and data exist with greater or lesser degrees of detail and reliability on fisheries resources. What is missing is an analysis that combines understanding of poor people, their livelihoods and their dependence on fisheries resources, while secondary data that meets this need may be limited. Some recent projects will be seen to be addressing this issue, and in others (such as DFID fisheries projects in Bangladesh) rapid livelihoods assessments have been made. However, these have focused more on aquaculture to date.

To fill these needs, this project will build upon work already done on understanding livelihoods and undertaking poverty analysis in the countries of geographic focus in order to draw out the main characteristics of livelihoods dependent upon inland capture and enhancement fisheries. Work already done includes both qualitative and quantitative approaches. In Bangladesh there is quantitative work by Bangladesh Institute for Development Studies (BIDS), e.g. Rahman and Hossain (1995) *Rethinking rural poverty: Bangladesh as a case study* and qualitative work by un Nabi et al. (1999) *Consultation with the poor: PPA in Bangladesh*.

In Vietnam there is quantitative work in the World Bank's Vietnam Living Standards Survey (1998), qualitative work in The World Bank's *Vietnam; Voices of the Poor*, and further data in *Vietnam. Attacking Poverty* (2000), by the World Bank. The *Attacking Poverty* report is the foundation for the analysis of poverty and its reproduction in Vietnam and for tackling it by creating opportunity, reducing vulnerability and ensuring equity. Additionally the report translates the perspectives of the poor on the structures, institutions and processes which impact on their livelihoods into a set of challenges which face the government.

2.5 The Nature of Poverty in Bangladesh

This section summarises in greater detail a profile of poverty in Bangladesh as the better studied of the four target countries. Bangladesh has an area of 143,000 km², of which about 15% is covered by permanent water bodies. The country is predominantly a flat floodplain/delta laid down by the three major rivers: the Ganges-Padma, Brahmaputra-Jamuna and the Meghna. This nearly flat topography is highly prone to drainage and flood problems with a third inundated during the annual monsoon period, and up to 60% flooded in unusual years depending on the distribution of rainfall and the coincidence and magnitude of river peaks and coastal tides.

Population in 2001 was estimated at 131 million, with an annual growth rate of around 2.17%. Bangladesh is one of the world's poorest countries with a GNP per capita in 1999 of \$370. Over 50% of the population is classified as poor (with 90% of them living in rural areas), while 36% of all Bangladeshis are extreme poor (including 40% of the rural population). Another 23% are classed as "tomorrow's poor". Over half of rural households and a greater proportion of female-headed households are functionally landless (owning less than 0.2 ha of land for cultivation), with 11% not even owning sufficient land for a homestead. Over 15% of rural households are headed by women. Bangladesh is in 144th place on the UNDP's Human Development Index (HDI) ranking, while its HDI has lagged behind GDP growth indicating that growth has not commensurately benefited the poorest sections of the population.³

Over 75% of the population, the greater proportion of whom are classified as poor, live in the rural areas, while the agricultural sector is the main source of employment. Agro-processing provides the core of industrial activity (jute, sugar, cotton, hides, tea and fish products), while

³ Fuller details are to be found in NRAC '97. For a more upbeat analysis concerning the overall poverty trend see Greeley (2000) who says 'Bangladesh has made outstanding progress in reducing poverty. In twenty years, the proportion of rural households below the poverty line has fallen from over 80% to 37% in 1996.'

other parts of industry supply agricultural inputs. Raw and processed agricultural products continue to generate the bulk of Bangladesh's foreign exchange earnings. In 1993/94, jute and jute products accounted for 12% of exports. Fishing contributes about 3% of GDP and is predominantly artisanal, although there is an industrial processing sector geared to export. It is estimated that 73% of the population engage in part-time fishing, while more than 8% depend upon it as their principal livelihood. More than 1 million ha of perennial inland waterbodies and over 3 million ha of floodplains provide an extensive area suitable for inland fisheries. Real annual growth in the fisheries sector has been rising steadily since the late 1980s registering 8.7% in 1993/94. However, the National Environmental Management Action Plan (1995) estimates that flood control has reduced floodplain fisheries by about 70%. A focus on aquaculture and culture fisheries projects aims to offset some of this loss, but it is probable that this will benefit wealthier farmers who can afford the capital investment, rather than poorer fishers who cannot.

Bangladesh faces serious problems of natural resources management (NRM). There is relentless pressure on land from a population growing at 2.17% per annum. Land available for agriculture is close to its natural limits, and increased agricultural output will have to come from intensification in the future. Population pressure is very high in all areas. Current population density (average $800/\text{km}^2$, cultivated area $1150/\text{km}^2$) is the highest in the world among countries of significant area, with the poor forced to become landless or to colonise very marginal areas including the transient islands (*chars*) which appear in rivers and river deltas and low-lying swamp areas. However these areas are particularly prone to the effects of the frequent climatic shocks (floods, drought and cyclones). Meanwhile land subdivision due to inheritance laws and crisis sales results in increasing landlessness. Critically Bangladeshi's resource use patterns are adapted to the temporally and spatially dynamic interface between terrestrial and aquatic natural resources. In consequence they are extremely vulnerable to seasonality and natural shocks and trends, and have to build 'portfolios' of livelihood strategies to cope. Unable to be self-sufficient in food, the livelihoods of marginal rural families depend increasingly on a mixed 'portfolio' of share-cropping, agricultural wage labour, fishing, non-agricultural labouring, migration to work elsewhere, and remittances from relatives abroad. The role of CPRs, and particularly open-access fisheries, feature prominently as expenditure-saving and survival strategies in the livelihood portfolios of the poor. Meanwhile, in keeping with the drive to improve the sustainability of the inland fisheries, government and donors are working to devolve their management from government organisations to resource users at the local level, a strategy identified as potentially having an impact upon rural poverty since it can enable the full utilisation of local technical and managerial knowledge. However, there have been questions as to how this local management is to be achieved.

Bangladesh's ever increasing population demands creative efforts to find new ways of producing more food from the country's finite resources. However the potential of Bangladesh's vast inland water resources for helping to meet these needs is threatened. DFID has a distinct aquatic sector strategy with a number of sizeable projects operational. Major projects include the Community Based Fisheries Management Project Phase 2 (CBFM-2) and the Fourth Fisheries Project (see list of significant projects later). DFID's fisheries sector programme is targeted towards landless, marginal and small-scale male and female producers who live in rural areas.

2.6 The Importance of Inland Fisheries in Bangladesh and SE Asia in People's Livelihoods

In this section we review briefly some of the issues and trends in livelihoods dependent on fisheries in these countries, but as this was part of the aims of the project more details are to be found in Chapter 5 and in the series of country reports and synthesis report.

While the role of the agricultural sector (inclusive of fishing) has declined in recent years in all four countries (to 20% and 27% of GDP in 1998 in Bangladesh and Vietnam, 42% in Cambodia, and 50% in Laos), agriculture and fishing are still very important in the livelihoods of rural people (who constitute 50% of the population in Bangladesh, 84% in Cambodia, 77% in Vietnam and Laos). Inland capture and enhancement fisheries are of considerable importance to the economies and rural livelihoods of the target regions not only in providing food (and in particular in providing animal protein (as already mentioned) to supplement the dominance of carbohydrate from rice in the diet.), but also in providing employment and income-generating opportunities. As the World Bank notes (2001), food insecurity means not just having insufficient access to food (either produced by the household or through having income to buy it), but also having insufficient to avoid malnutrition due to protein and micro-nutrient deficiency. Household food security is the prime concern of poor households. It determines production and investment choices.

2.6.1 Bangladesh

Property rights and access to aquatic resources are complicated. Inland open-waters are divided into over 12,000 *jalmahals* in which fishing is leased out by the government. Leases often go to locally powerful elites or moneylenders. In the last 15 years there have been experiments in licensing fishing rights by the Department of Fisheries, in open access in rivers, in floodplain stocking, and in community based fisheries management. The Third Fisheries Project focused on stock enhancement in large floodplains. The Fourth Fisheries Project currently has an enhancement orientation, but also seeks to improve on equity and institutional arrangements. The situation is complex, but in reality elites still 'own' most fishing rights and profit by collecting tolls from or employing professional fishers. However, when monsoon inundation joins waterbodies together they become *de facto* open to local villagers to fish and are then common property.

2.6.2 Cambodia and Lao PDR

The importance of fisheries in livelihoods has also been underestimated here. In Cambodia the Department of Fisheries reported an inland fish catch in 1995 of 72,500 t, but recent estimates indicate annual catches of about 400,000 t (Diep et al. 1998). Some 2.3 million people are estimated to live in fishing communes and fish dominates animal protein consumption - up to 75 kg/person/year (Ahmed et al 1998). Recent policy changes have reserved some fisheries for community management and there is scope to learn from Bangladesh. In Lao PDR the capture fisheries fall into two main categories – small reservoirs and riverine and floodplain fisheries. The latter are comparable to the other countries, for example in Khong District along the Mekong 94% of households fish with an average consumption of 43 kg/person/year (Baird 1999). There have been important experiments in community management and fish conservation that may provide lessons for the other countries.

2.6.3 Vietnam

In Vietnam the highest population densities are in the Red River and Mekong Deltas and the fisheries sector employed about 9% of the labour force in 1995 (IFEP undated). Inland fisheries comprise some 230 natural lakes, 2,470 reservoirs and 548,000 ha of floodplains. There is evidence of declining catches, but subsistence catches are not counted and inland fisheries only merited a few paragraphs in the master plan for fisheries to 2010.