

Eval. Inv. 1.4.20

IDRC - Lib. 113016

**Survey and Assessment of IDRC's Completed Projects:
Social Policy, Public Goods and Quality of Life Issues**

Three Case Studies

**Resource Costs of Under Nutrition and Morbidity, India (93-8300)
Informal Sector Street Food, Pune India (87-0053)
Inland Fisheries, Nepal (82-0191)**

Manjul Bajaj

January, 1998

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1.0 Resource Costs for Under Nutrition and Morbidity (93-8300)

1.1 Description of Project

The project was conceived against the background of a perceived neglect of the social sector in the resource allocation and planning processes in India. It was felt that part of this neglect was attributable to the lack of empirical data and rigorous analysis available to policy makers as a basis for informed decision making. A particularly large gap was seen in the literature with respect to the economic costs of ill-health and under-nutrition. The project sought to redress this gap. The urgency and topicality of the proposed subject was enhanced by the fact that the economic liberalisation and structural adjustment process was then just beginning in India and public allocations to health and nutrition in real terms were under threat of greater compression.

Objectives

The main objectives of the project, in general terms, were:

- To develop a conceptual framework for the economic analysis of the health and nutritional problems of the people of a given region.
- To develop for the selected region the incidence profiles of morbidity and under nutrition of people according to gender, rural urban areas, socio-economic and occupational status, size of family etc.
- To develop estimates of resource costs of under nutrition and various types of morbidity in the selected region.
- To bring out the significance of resource cost of under-nutrition and morbidity for households of different socio-economic backgrounds, thus highlighting the urgent need for measures to overcome under nutrition and morbidity of such households.

Strategy

Using four districts in the state of Karnataka as the sample region, the project set out to estimate the direct (treatment and transportation) and indirect (loss of earnings, attendants' time) costs of under-nutrition, ill-health and mortality due to ill-health and in doing this to develop a simple and replicable methodology for wider application.

Primary data were collected from two principal sources : a survey of households and a survey of patients at clinics. The household survey combined the self perception and recall of respondents with clinical investigations including anthropometric data and a specially formulated set of visible indicators of health/ nutrition status. In all, 2548 households covering 14565 individuals and 2124 patients were surveyed. The socio-economic and cost data were collected by investigators with social science training while the medical data was collected by paramedics trained for this purpose. The entire effort was guided by a cross-disciplinary Advisory Committee comprising of doctors, nutritionists and economists.

The direct and indirect costs of ill-health and mortality due to ill-health were estimated by age. The contribution of under-nutrition to morbidity was included through a series of regressions. An inflation rate of 5% and a discount factor of 10% were assumed to compute the present value of lifetime costs by age, which were then projected for the economy as a whole on the basis of the estimated size of the sick population.

The project worked in close collaboration with the local medical and academic community. Wider dissemination of work done was achieved through a final seminar, well attended by academics from India and Nepal. The deliberations of this seminar resulted in a refining of methodology and results which were incorporated into a final technical report. This has been shared with the Planning Commission within India and internationally with researchers based in IDRC's MIMAP projects.

Inputs/Activities

The total size of the grant provided to CMDR was \$ 129,060. An additional \$10,000 was provided out of the MIMAP project towards organising the dissemination workshop. That this grant was important and provided a significant degree of support to the recipient agency is best highlighted by the fact that for the period 1993-97 IDRC was CMDR's single largest donor contributing just under half (48%) of its total project funding. This point is important in the sense that whatever capacity building impacts the project may have had would have in all probability a determining influence on the agency as a whole.

In non material terms IDRC support went towards encouraging researchers, providing them access to literature and to other researchers, intellectual inputs into refining methodology and final presentation of findings, planning inputs into the conduct of the final workshop and assistance with dissemination via IDRCs MIMAP network and through an announcement posted on its website.

Context

The project was mooted by the Centre for Multi-Disciplinary Development Research (CMDR) based in Dharwad in Northern Karnataka. While, Karnataka itself is a relatively prosperous state, Dharwad is a small place best known for its academic institutions and culture and somewhat disadvantaged by the fact of its geographical inaccessibility in terms of air and direct rail connections. This constraint is well recognised by CMDR and CMDR itself is an attempt to challenge the hegemony of metropolises and big cities in running successful research institutions. Though somewhat better established now, the Centre was at the start of the project a relatively new institution in need of establishing a track record professionally and of consolidating itself in terms of resources and infrastructure. Its main strength lay in the professional capacity and personal commitment of its Director and core staff and its need to prove its institutional credibility. Another factor which may have contributed to the success of the project is the relative cohesiveness of the professional community in a small town like Dharwad which made it possible for CMDR to access the time and input of local medicos, academics and district officials for the project: some as consultants and others as part of a formally constituted Project Advisory Committee.

From CMDR's perspective, this project was preceded by a Ford Foundation supported study on decentralized planning in the health sector. While that study was more administrative in its focus, it was important in that it lay the foundation of the Centre's interest in and familiarity with the district level health structure. The record of IDRC's own participation in the project reads variably. As a result of IDRC's preoccupation with its internal reorganisation processes, project development and approval took about two years. Departure of the initiating Programme Officer (PO) and frequent subsequent changes in the PO-in-charge contributed to further neglect of the project in its initial stages, the only ameliorating factor being the Project Leader's frequent visits to Delhi and persistence in keeping IDRC abreast of the project's progress. The situation was retrieved somewhat

by the final PO to whom the project devolved. A field visit to CMDR fostered interest and commitment on the part of IDRC¹ and considerable intellectual inputs, moral support, encouragement, practical guidance and access to other researchers was ultimately received by the project from IDRC, which can be judged to have had a determining influence on the quality of the final outputs.²

1.2 Project Outcomes

Outputs (Products, services, processes)

The main outputs from the project were:

Products

- A final technical report. This is a very detailed and technically solid piece of work, potentially of interest to other economists and researchers in the field. To the extent that this has been shared with others it has been found very useful. A researcher based at the Gokhale Institute of Economics and Politics at Pune (who was also an invitee to the workshop) revealed during the course of discussions with the case author that he had drawn considerably upon the draft report (the final is yet to reach him) to develop a framework for his own study on a different but related topic. Similarly, discussions with the ex-Director at the same institute revealed that Dr Panchamukhi had drawn upon the study to deliver a very stimulating and well received seminar to a batch of economics lecturers based in different colleges for whom the Institute organises Refresher Courses. Letters are also on record from other participants at the workshop congratulating CMDR on the utility and relevance of its work.
- A replicable methodology for estimating the resource costs of under-nutrition and morbidity for any given region along with a computer software package for inputting and computing survey data. The availability of this has been broadcasted through the print as well as electronic media but it is too soon to say what kind of response has been generated.

Services

- The building up of an extensive, good quality library collection and referral service on the subject of health economics available to scholars and academics in the region.
- A pool of trained investigators (eighteen to be precise) familiar with health/nutrition related data collection, including the collection of anthropomorphic and clinical data, available to different projects and agencies in the region which may be interested in working in the health field. These investigators have been used by the Population Research Centre station based in Dharwad, by other donor funded projects and by CMDR itself in a subsequent project.

¹ In addition, that is, to boosting "staff morale and institutional development" in the recipient institution, as highlighted in the PCR. This is just to belabor the point that field visits are mutually important, with both donor and donee standing to gain.

² The question of what happens to projects with less persistent leadership, in the face of donor inconsistency, however remains hanging in the air.

Processes

- A successful demonstration of how a multi- disciplinary advisory committee can lead to better project design through a cross fertilisation of disciplinary perspectives and approaches. This process is now a part of other CMDR project initiatives (e.g. the IDRC funded tobacco control project).

Reach (Beneficiaries)

In a sense the reach of this project is skewed towards those involved with different aspects of its design and implementation e.g. members of the advisory committee, researchers and field investigators. All of these have benefited to no negligible degree, a point which will be discussed in the subsequent section under capacity building. Post project reach has been somewhat more limited (invitees to the final workshop fall in the grey area between implementation and dissemination as they had a determining influence on the course of the study). A large part of this can be attributed to the fact that at no stage of the project formulation or implementation were the prospective users identified with any degree of specificity, a general allusion to policy makers and researchers serving for most.

The table below looks at the different components of the project, their different potential uses and users, how best they could have been targeted and the extent to which this already been done.

Table 1: Exploring Reach

Potential User	Relevant Project Component	Appropriate Packaging	Extent to which done
Academics and Researchers in Health Economics.	1. Entire Study	1.1. Final Report 1.2. Executive Summary 1.3. Journal articles 1.4. Participation at workshops and seminars	1. The final report has been circulated to a very limited extent and the ES somewhat less so. Journal articles and presentation of findings in other fora are under consideration. A presentation was made at a Refresher Course for College Lecturers organised by the Gokhale Institute of Economics and Politics, Pune.
	2. Methodology	2. Computer software with accompanying manual.	2. Developed and notice of its availability put out in the Economic and Political Weekly. Notice of its availability also to be put on IDRC website.
District Health Officials	Pattern of disease incidence and prevalence in their specific district.	1-3 page district wise summary of salient findings.	DHOs have been given copies of the Executive Summary of the report but this is perhaps too technical to be directly useful to them.

Community Health Organisations and workers	As part of the field survey methodology CMDR developed 19 visible indicators of malnourishment and morbidity.	A Rapid Health Assessment Kit for the use of field workers in the area of Community Health.	Not contemplated. Would perhaps need collaboration with a community health NGO, to develop fully.
Villages from which data was collected	Information on disease patterns, pattern of health seeking behaviour and cost burdens emerging from survey and their implications.	Simple pamphlets, hand bills, posters etc.	Not done but some of the information generated from surveys will be shared in this manner in the on-going IDRC supported project on the economics of tobacco cultivation.
Policy Makers	Summary of main findings and their implications for resource allocation. (Note: some degree of additional analysis on existing patterns of resource allocation would be necessary for this to carry any weight).	1. Short presentation with the aid of transparencies/slides. 2. A non- technical paper highlighting main issues explored, the findings and their implications.	Not done
Multilateral and bilateral agencies/ projects/ international agencies working on health issues in Karnataka.	Summary of main findings and their implications for resource allocation.	Circulate copies of and draw attention to non-technical paper above.	Not done.
Civil Society (e.g. charitable trusts, Rotary clubs etc.)	Information on disease patterns, pattern of health seeking behaviour and cost burdens on different segments of society emerging from survey.	Press releases in English and Kannada	Done to a limited extent

Thus it would not be incorrect to surmise that the actual reach of the project has been less than its potential reach primarily due to the lack of a coherent communications strategy. This springs perhaps from a lacunae in the objective formulation exercise itself i.e. though the final objective does read as 'To bring out the significance of resource costs of under nutrition and morbidity' it is incomplete in not stating *to whom* and *how*, a deficiency reflected in the lack of a focused dissemination strategy for the project. Three aspects of the communications question as they relate to the project are discussed here:

1. *What is to be communicated?*

The emphasis of the research team has been almost exclusively on issues of methodology (particularly the statistical and econometric facets) and the final results as well other outputs have not received the same thrust. Reach is limited by the fact that as long methodology is the chief product the only audience is likely to be fellow economists. And further methodology itself is not a stand alone product needing, as it does, credible results to back it.

2. *How to communicate?*

The final report is at present the only other product apart from the statistical package mentioned above. The length and more importantly the language of the final report makes it inaccessible to all but professional economists. As very few administrators, opinion and policy makers are that, this is a serious limitation.

3. Who to communicate to?

A large part of the projects underlying aim is to influence resource allocation yet while, there has been continuous discussion with district level health authorities, there has been no direct targeting of the state level at which resource allocation decisions are invariably made.

A more systematic discussion of these issues between CMDR and IDRC could lead to an enhancement of reach and finally of outcomes.

Impact

The limitations of reach notwithstanding the project has undoubtedly had some significant impacts in terms of building capacities, developing approaches and fostering attitudinal changes. These are discussed separately below:

Capacity building at the individual level: For all of the principal researchers working on this project (1 female, 2 male) this was their first full-time engagement in the specific field of health economics. Considerable capacity and a continued interest to work in this area of specialisation has occurred due to the project and is reflected in their subsequent choice of research topics.

Capacity building at the institutional level: As a direct consequence of this project, CMDR has developed and established its credentials in the area of public health policy. Its expertise is recognised and is increasingly being called upon by governmental and other agencies in the design of related projects.

Capacity building at the regional level: The availability of good quality referral services, experienced senior researchers, empirical data generated by the study and trained investigators has created an impetus around the study of health economics in the region. Two students, one at the Dharwad University and the other a local based at the Jawaharlal Nehru University in Delhi, have registered for PhD programmes which will draw substantially upon these resources. As mentioned earlier, the study was also used as training material for college lecturers. While unsubstantiated, it would not be unreasonable to claim that some of this would have impacted in the form of greater awareness and interest in the subject of health economics at the under-graduate/ graduate student level.

Fostering Attitudinal Change: The multidisciplinary advisory committee format adopted by the project was conducive to initiating a healthy dialogue between the different disciplines and enlarging the perspectives of many of the participants. At the community level it demonstrated a new and better approach for working on issues of public interest which cut across disciplinary lines (i.e. doctors, economists, nutritionists) and the private and public domain (i.e. private medical practitioners, academics, public health officials). At the individual level it resulted in learning and change for the participants. For example, a paediatrician associated with the study told the author "As a doctor I never had any idea of Health Economics. Now, whenever I get a rural child (as a

patient) the whole gamut of events that have transpired before he has arrived at my door go through my mind - the direct and indirect costs. My whole approach to my work has changed - I now emphasise (to them) the importance of personal hygiene and (disease) prevention". While difficult to quantify or measure this is the kind of impact which would presumably give development research a good name.

1.3 Enhancement of Outcomes

Since the study was found useful by those whom it reached, the primary line of action which suggests itself vis a vis enhancement of outcomes is the expansion of reach. A multi-pronged communication strategy addressing the issues of *what*, *how* and *to whom* could enhance the overall impact of the project.

1. The issue of *what* to communicate is perhaps best addressed towards the end of the project. As Table 1 above highlighted there are many different aspects to the completed study, potentially of interest to different constituents. Not all of these could have been foreseen or planned for at the start of the project. However, once the study is completed a stock taking between recipient and donor in terms of what has been achieved and what needs to be done with it and how it should be done could yield rich dividends. This point is of relevance not just to this project but to all similar initiatives. Typically, donor interaction with projects ends with the submission of a final report or the organisation of a final workshop. Mirroring this, recipient efforts too converge to this point and then dissipate. Much needed follow up action thus gets neglected. If the Centre could build into its project design a three to six month post completion phase to work with the recipient on issues of dissemination and distribution, the reach and finally the impact of many projects could be enhanced manifold.

2. A second route to enhancement of outcomes, can be found in the answer to the question of how to communicate. In general, projects tend to result in one or two grand outputs - a final report or a final workshop and its proceedings. Smaller, better targeted and more dispersed (over time) products could achieve better results. Thus, the CMDR project could perhaps have adopted to better effect a strategy that included one or two small information sharing bulletins, a policy oriented article, an oral or slide presentation and perhaps support towards a series of lectures at different academic centres. In analogous terms, what is being suggested is that the Centre encourage its partners to adopt a cafeteria approach³ to the dissemination of research results - to generate a menu of small, discretely packed, outputs which can be taken singly or in different permutations and combinations as per the users needs.

3. Finally all projects in this genre, including the one under discussion, start out with a hazy view on the exact identity of the 'policymakers' they are targeting. Simultaneous to the conduct of the research, recipient agencies could be encouraged to compile a mailing list of individuals, agencies and journals, to whom their work would potentially be of interest. This list could then be revisited at the end of the project to determine what would be an appropriate dissemination strategy in terms of contents and specific products. In the post completion phase of the project, a well compiled mailing list could provide both impetus for action as well as a practicable tool for monitoring the reach of the project. This measure also has capacity building implications as such a list, once

³ As against a "grand feast" approach!

initiated, would also stand the recipient institution in good stead for its future work in the particular work area.

1.4 Public Relations

The project is one where the results can be described as mixed, so if a strong instance of positive impact is what is required for publicity material then this project is not the ideal candidate. However, it has many worthy features which can be used to illustrate IDRCs work. The theme and process of research can be communicated in an interesting manner to the general public as costs of health care, prioritisation of disease control programmes etc. are issues with strong parallels in the North American context. Also likely to evoke appreciation is the aspect of attitudinal change.

1.5 Case Writer's Observations

From the analyst's perspective this case is a particularly interesting one in that all its individual parts are good and well accomplished but the sum of parts does not add up to the impact envisaged at the start of the project.⁴ The project had the benefit of able leadership, a dedicated research team, participation from the wider community, interest and support from IDRC; its strategy was well suited to the achievement of objectives and the objectives themselves can be adjudged to have been well met. Yet the visible impact can only be described as moderate to weak. Part of the blame has already been laid at the door of incomplete objective formulation in that the projected reach of the study was not sufficiently well defined at the outset and aspects of dissemination were ignored. It is further being suggested here that the objective formulation of the project deserves a still closer examination, at this juncture.

When delving into issues of impact it may be more revealing to go beyond *stated* objectives to the *underlying assumptions* beneath them. Between the set of stated objectives and the assumption that the meeting of these objectives will positively impact directly or indirectly on the lives, in particular the health and nutrition, of poorer households in the region/ country, is a chain of reasoning that needs to be made explicit. The table below presents the four written objectives of the project and their unwritten corollaries or assumptions. Thus, if the objectives of a project have been admirably met (as in this case) but visible impact is weak then it may be fruitful to look for a break in the chain of assumptions and to see whether it may have been within the purview of the project to redress some of these missing links.

Table 2: Objectives, Assumptions and Impacts

Stated Objective	Underlying Assumption	Comments
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⁴ "The results of the study would aid the decision making at the state level as well as at the level of an apex body of the Planning Commission.....Strengthening of the data base for health sector at the district level would facilitate the planning process at the decentralized district level". Project Proposal submitted by CMDR.

"... that people in Karnataka will benefit from improved resource allocation decisions, particularly at the State and local levels." Project Summary prepared by IDRC.

To develop a conceptual framework for the economic analysis of the health and nutritional problems of the people of a given region.	The gap in economic literature regarding health and nutrition in India can be attributed to the lack of a viable conceptual framework for such type of economic analysis. Once such a framework is developed it will be adopted by different actors across the region and used to develop similar studies.	It may be equally true that no conceptual framework exists because no perceived need or demand for this type of study exists. In this case the team would need to work simultaneously on creating a constituency for such studies. Networking with different institutions working in the field of applied economic research could have been one line of action.
To develop estimates of resource costs of under nutrition and various types of morbidity in the selected region.	Resource allocation to the health and nutrition sector is inadequate because of weak advocacy for this sector. One of the main reasons for this is the lack of an economic rationale and little knowledge of the economic costs of disease and ill-health.	There are two aspects to this: 1. Advocacy could be weak because the affected group is politically weak or unorganised. In this case supplying data back to the affected population could have contributed to their political empowerment. 2. The affected group may already have strong advocates but these may not be aware of the economic arguments / able to use economic data for their cause. In this case targeting the advocates of greater interventions in public health and nutrition and supplying them with study information may have been a necessary component.
To develop for the selected region the incidence profiles of morbidity and under nutrition of people according to gender, rural urban areas, socio-economic and occupational status, size of family etc.	Intra-sectoral allocation within this area is also skewed due to poor data on the incidence profile and costs of different diseases. This can be improved by collecting and making available analysed data.	Intra-sectoral allocation is never done de-novo but follows historical trends (i.e. by adding and subtracting from existing allocations). If the study wished to impact on this allocation process it also needed to study existing allocation patterns, compare these with recommended patterns emerging from its incidence data and suggest changes at the margin to move towards more rational allocation patterns.
To bring out the significance of resource cost of under-nutrition and morbidity for households of different socio-economic backgrounds, thus highlighting the urgent need for measures to overcome under nutrition and morbidity of such households.	Public sector allocations and programmes in the area of health and nutrition are effective in reaching the poor. Therefore, greater public sector resource allocations to these sectors are desirable as they will mean larger health and nutrition benefits to the poor	If there were sufficient empirical evidence to show that public sector programmes do not help the poor then the project were best left undone.

While hidden assumptions are a ubiquitous part of all project design they are specially important in the case of policy oriented research studies, as these projects yield little else in terms of fish, fowl, fruit, farming practices and other such tangibles to justify their existence. The point has far-reaching implications for the design of future projects in the arena of public policy: making explicit the basic premises and underlying assumptions, discussing and ascertaining their validity and pursuing those lines of action where the linkage between objective achievement and impact is based upon tenable assumptions could lead to more impact oriented project formulation in the policy arena.

Informal Sector Street Foods (India) - Project No. 3-P-87-0053

2.1 Description of Project

The study took as its starting point the fact that street food vending is an important economic activity for the urban poor in many cities of the developing world. Earlier studies, located in different parts of Southeast Asia and Africa, had demonstrated that street food vending was an expanding activity which provided food and income to a significant proportion of the poor in these cities. The study undertook to estimate the size of this activity in Pune city in India which with a population of 1.6 million was growing rapidly (@ 4.8% per annum) as an industrial and metropolitan centre. At the time of formulation of the study, municipal authorities in Pune were planning to license and regulate this activity in the city and had on record some 10,000 applications for permits from vendors. The study aimed to assist with the development of a coherent policy of regulation and assistance to street food vendors.

Objectives

The principal objectives of the study could be described as:

- To assess the overall size and socio- economic characteristics of the street food vending activity in Pune.
- To identify the operational characteristics of the enterprises as they concern such variables as type of food vended, hours of work, sanitary standards, capital needs, access to credit etc.
- To examine the existing policies of government agencies involved in the licensing, monitoring and financing of street food vendors.
- To recommend ways to alter these policies to better serve the interests of vendors and consumers of street foods.

While the study succeeded admirably in its immediate goals relating to assessing the size, socio-economic and operational characteristics of street food vending as an economic activity and in documenting the existing licensing regime and policy variables pertaining to this sector, its larger goals of recommending appropriate policy changes and helping create a more favourable environment for street food vending cannot be said to have been met to any appreciable extent. Except for the increase in numbers, due to normal growth over time, no demonstrable changes could be found in the street food vending sector in Pune while revisiting it for the purposes of the impact assessment study. Neither the condition of hawkers nor the official attitude and policies surrounding them showed any significant differences in the post study period. The reasons for this will be analysed over subsequent sections.

Strategy

There were four components or main elements of strategy relating to the study:

1. Census: The study set out to establish the size and importance of the street food vending sector in Pune. While Municipal records were accessed and scrutinised, it was not clear to what extent they could be relied upon. Hence a complete enumeration and census of all street food vendors in the 283

designated hawking zones of the city was carried out. Reports suggest that this was a meticulously planned and executed task taking into due consideration variables which could contribute to double counting. The results yielded a total of 1583 street food vendors (the majority of these hawkers and the rest kiosk owners)¹. This part of the study also established that the sector played only a very small role in providing employment (0.75% of the labour force) and food (only 1.6% of the vendors provided low cost street meals)² for the poor in Pune city.

2. Sample Survey: Based on the census results, a stratified sample of 236 vendors (15% of the total) was selected for a more in-depth study of their socio-economic and operational characteristics. This included all 21 low cost street meal vendors in the city.³ The survey revealed a host of valuable information on the different categories of street food vendors - their educational and residential status, levels of investment and earning, mode of operating etc. It revealed that in general street food vending was not an occupation of last resort but was taken to by people with some previous work experience in related activities and with educational levels comparable to the city's overall educational profile. Women tended to occupy the lower end of the business either providing labour to family owned enterprises or as single entrepreneurs working on low margins providing cheap home made meals to the poor.

3. Microbiological tests: A total of 252 food and water samples were taken from street food vendors (188), restaurants (27) and low cost meal providers (37) to determine the health and safety standards of the food being surveyed. The testing protocol was very detailed covering 14 different types of uncooked foods (salads, chutneys, milk-shakes etc.) and 80 different types of cooked food. The tests revealed that over 80% of street food samples tested were of unsatisfactory bacteriological quality but showed also that they were no worse than those served by authorised restaurants. Street meals occupying the lowest echelons of the sector and served simply on pavements (as against push carts and kiosks) were of better hygienic quality than either of the above. The gender of the providers, a majority of them women, was seen as the explanatory variable.

4. Dissemination workshops: At the end of the study, half day dissemination workshops were organised in two different localities. These were attended by over 100 street food vendors as well as local municipal officials. The focus of these workshops was on sharing information relating to the health and hygiene standards of food served with the vendors, demonstrating to them with the aid of the microscope and other audio visual aids the different types of contamination and imparting training on more hygienic practices. The workshops also provided them with information on governmental regulations and on bank loans and schemes they could avail of for their businesses.

The study also collated and presented in the final report the various licensing requirements for street food vendors.

While the study was a detailed and ably conducted exercise, with sufficient attention paid to developing a good rapport with the vendors and keeping them involved at each stage it lacked the involvement of other actors key to achieving impact. The chief lacunae in the methodology can be

¹ This was close to the municipal authorities estimate of about 1500 and contrary to the study team's own starting assumption of around 4000 street food vendors.

² The bulk dealing with light and heavy snacks, hot and cold beverages, ice creams and ice lollies etc. outside cinema halls, in parks, markets, other recreational places.

³ The census identified these as a distinct class of providers catering to a specific clientele -the very poor, indigent and homeless.

described as the lack of involvement of municipal authorities, local NGOs and pressure groups who could act on the information. A limited dissemination effort was made in terms of sharing the final report and findings but it would be too sanguine to expect that it could result in action as the problem at hand was one of considerable complexity involving the conflicting interests of a large number of actors - vendors, consumers, health and traffic authorities. Also though the study generated large volumes of very detailed information on the sector, its recommendations were not formulated in terms of specific suggestions or alterations but were in the nature of general, broad guidelines.

Inputs/Activities

A grant of CAD 38,440 was made by IDRC in support of this activity, which went largely towards meeting the salaries and expenses of the research team and for conducting micro biological tests on food and water samples. IDRC involvement with this project was minimal and limited to the administrative and financial aspects. The project did not have the benefits of visits by IDRC programme staff, networking or exchange of ideas with other IDRC funded projects in the same field, or any other intangible inputs from the Centre in the form of discussions, advice, encouragement or feedback on on-going work. It would not be too much of an exaggeration to describe the project as an 'orphaned project' what with the twin occurrences of the terminal illness and subsequent demise of the initiating PO and the downsizing of the regional office in Delhi and its being passed on, alongwith a fistful of other such projects, to program staff in Ottawa already preoccupied with other activities. While mere conjecture at this point, it is not difficult to imagine that the course of this project could have been very different had the Centre played a more proactive and supportive part.

Context

The recipient agency, the Centre of Studies in Social Sciences (CSSS) was conceived as a loosely structured organisation, meant to provide a platform for academics and researchers based in different institutions in Pune to work together on issues of common interest. It works with a minimal amount of infrastructure and permanent staff and draws in resources on a project specific part time basis.⁴ The principal researcher for the IDRC supported project, Dr. Meena Bapat, was known to the initiating Programme Officer, Dr. Suzanne Mowat, through her work on an earlier Centre supported project⁵ and was asked to develop a proposal of mutual interest for the Centre's consideration.⁶ After some initial confusion about whether the ownership of the project idea belonged to the researcher or to Dr. Bapat's previous employer (Centre for Development Studies and Activities, Pune), IDRC decided to support Dr. Bapat's research allowing her to use CSSS as an organisational base. Dr. Bapat is essentially a freelance researcher and consultant and her formal link with CSSS was co-terminus with the project. She did not work with it either prior or subsequent to this project. Such an institutional context and the specific working arrangements for this project are important in that i) the scope for institutional capacity building is largely diluted and ii) the scope for diffusion of results through the different organisational affiliations of different researchers is somewhat enhanced.

⁴ The structure has become somewhat more formal of late with 12 full time staff but it still retains its work culture of flexi hours, working from home etc.

⁵ 3-P-85-0101 -The Impact of Environment and Economic Class on Health in Urban India Project

⁶ The choice of subject seems to have been based on its topicality and general relevance rather than on any distinctive features of the sector in Pune which made felt a need for this type of a research project.

2.2 Project Outcomes

Outputs (Products, services, processes)

- The principal output from the project was the publication entitled "Street Food Vending in Pune" by Dr. Meena Bapat. This is a good quality output - well researched, well written and attractively presented. 150 copies of the report were prepared and it was shared with all municipal counsellors in Pune, a few of the English speaking vendors and with other institutions based in Pune. Municipal officials apparently showed reluctance in even accepting a copy of the study for their perusal and records. IDRC also does not seem to have taken an interest in the report in terms of sharing it with researchers in other urban informal sector projects supported by the Centre across the globe.
- Training was provided to about 100 street food vendors operating out of two principal vending sites of Pune. This was a one-time, half day training and participation was solicited by an open invitation to all the vendors in the particular locality. The response from vendors was adjudged enthusiastic. Since no provision had been made in the original project proposal for such trainings, these were done by CSSS on its own initiative and out of its own resources. Based on the response to these trainings CSSS considered using the audio-visual material prepared for additional such trainings and sought the support of the local Rotary Club for this, but the proposal did not fructify. Some of the vendors who attended the training workshop were re-visited by the case writer. While they recalled the training event they had not been able to incorporate any of the hygienic practices imparted primarily due to the lack of adequate facilities in terms of water supply, space, garbage disposal etc. Preoccupation with the daily issues of survival - of holding on to their tiny bits of space against municipal dictates - was cited as another reason for their inability to make practicable use of the training imparted.
- Two of the researchers working on the project developed a prototype for an improved push cart - one that would enable the vendors to serve most of the food items being catered by them in a hygienic and practicable manner. The design was discussed with vendors to gauge their response and based on this the idea of having a few model pushcarts constructed and given out for demonstration purposes in key localities was mooted. It was put forth to the local Rotary Club but failed to generate sufficient enthusiasm. The researchers did not pursue any other avenue for promoting the idea. The notion that they could have directly taken the design to manufacturers of push carts and examined its cost implications and commercial feasibility or could have proposed a small demonstration component to IDRC (\$ 2000 would have sufficed) was put to them by the case writer. However, since neither of these approaches suggested themselves at that point in time the proposal was abandoned.

Reach (Beneficiaries)

Despite good quality research and the generation of valuable information, the study had a limited reach. A large part of this can be traced back to a lack of clarity at the outset on the question of "*who was conducting the research and for whom?*" Of the three principal categories of potential beneficiaries - vendors, consumers and municipal agencies - CSSS had no links or affiliations with any. It was a fourth and entirely different category of agency - a social sciences research agency with no specific mandate from any of the concerned parties. This had important ramifications for the reach of the project:

One, the entirely independent position of CSSS could have been utilised to define its role as that of a *catalysing agent* and perhaps this was vaguely what was intended. But for catalysis to work successfully the principal agents themselves have to be present. The design of the study failed to co-opt any of the relevant actors while the study was in process - e.g. municipal authorities, hawkers' union, consumer fora, local NGOs. Later attempts at dissemination were limited and, in any case, unsuitable to the task at hand. The study followed a traditional Do and Then Disseminate Approach while the task at hand demanded a more participatory, problem solving paradigm.

Two, there was a lack of clarity about who the study was supposed to serve. The study started out with the declared intent of assisting policymakers⁷, a nascent sympathy for the cause of the vendors and an ambivalent attitude towards consumers. It had no guideposts regarding which side it would be on in the eventuality of a conflict of interest. Thus faced with mixed results, the study was unable to decide upon an appropriate communication strategy and simply down played some of its important results for fear of harming the interests of one group versus another (e.g. hawkers versus consumers, hawkers versus municipal authorities).

Some of the important knowledge outcomes of the study and who they could have benefited and why this did not happen are discussed in the table below:

Table 1: Exploring Reach

Knowledge Outcome	Potential Beneficiary	What happened
The study conducted a full enumeration of street food vendors in Pune and obtained the information that there were 1583 vendors, as well as their break-up in terms of kiosks, push carts, pavement operators, food supplied, timings, location etc.	The fact that the sector was still so small could have been highlighted to city planners as a positive attribute as it made the problem tractable and of manageable dimensions and could have been used to make a case for addressing the issue as early as possible.	The small numbers involved were interpreted to mean that the sector played a relatively insignificant part in providing informal sector employment in Pune. While true in itself, this was not a creative use of the information generated e.g. the relatively small numbers could have been used to put together a viable plan which could have served as a prototype for hawker dominated areas in the neighbouring metropolis of Bombay.
Exact information of the location of vendors, numbers at each site etc., timings, type of custom sought.	Traffic Authorities	Information not interpreted and passed on in a usable format. Initiating a dialogue between specific vendors and traffic authorities at key traffic bottlenecks could have lead to some mutual bargaining and creative solutions to the problem.

⁷ With no visible clout however.

Survey information on the bacteriological status/ confirmation to safety standards of the different types of food served.	Consumers could have benefited from an awareness programme on safety aspects of food consumed by them.	Consumer awareness programme was not taken on for fear of harming the interests of hawkers e.g. consumers would eschew street food in preference to larger, more formal establishments. The fact that restaurant food was just as bad was used to justify this stand. However, a general awareness programme focusing on types of food and methods of serving could have been designed e.g. hot foods are safer than uncooked salads, chutneys etc.; paper plates are safer than plates washed in unsanitary conditions etc.
Survey information on the bacteriological status/ confirmation to safety standards of the different types of food served.	Health Authorities could have benefited from information on what types of food are most prone to contamination to use their limited staff to concentrate on the most important threats to public health.	Not considered.
Survey information on the bacteriological status/ confirmation to safety standards of the different types of food served.	Vendors themselves could use this information to upgrade the quality of products and services being offered by them and also to bargain with municipal authorities for better facilities.	Vendor training was undertaken but this was a one off activity and not a sustained programme. Additional funding at this juncture would have helped. Organising of vendors to access better facilities was not possible as CSSS was a research not activist NGO. Working links with a more action / advocacy oriented NGO would have helped. ⁸
Detailed information on the 21 street meal vendors in Pune and the salutary role played by them in providing cheap and nutritious food to serve the poorest of the poor.	Effective advocacy or linking up with some city focused NGO or women's' credit group could have improved the operating condition of these women vendors providing them much needed respite from harassment by authorities and access to credit and facilities.	Not done.
Study as a whole	Other organisations working in India and abroad on urban informal sector activities could have benefited from this extremely detailed study.	Networking not done.

⁸ According to CSSS, the chief constraint to this was a lack of NGOs working on civic issues in Pune.

While the study did not have a formal strategy for reaching different segments of potential users, its results were communicated by the research team working on it informally and by word of mouth to their friends and acquaintances and to colleagues, students, participants on other projects on which they were working. For ease of presentation these are discussed below, in the section on impact.

Impact

The key impact expected from the study was that of influencing policy makers and assisting them in the design of a viable strategy for regulating street food vending. This was not realised to any appreciable extent due to the failure to penetrate through the disinterest of the municipal authorities and build a working rapport with them.⁹ However smaller impacts were mentioned by the project team and these are described below:

The knowledge generated by the project was used by researchers in their individual and institutional contexts.

- The researcher responsible for conducting the hawkers' survey said that collecting information on such a sensitive subject had required a great deal of tact and preliminary rapport building with the vendors. These skills acquired while conducting the study had stood him in good stead for subsequent people centred research.
- The microbiologist associated with the testing of water and food samples reported that she was utilising the survey results as case materials for lectures delivered by her to University students in the course of her teaching work.
- Yet another consultant to the project reported disseminating the results to school children through his association with the State Science Council. Some students from Thane (a neighbouring township) had conducted a similar study in their vicinity and won an award for it at the National Science Congress for Children.
- CSSS itself had learnt that handling of water was a key concern relating to public health and had taken this enhanced awareness to its projects. Currently it is involved with a programme of raising awareness among school children on handling water across 120 schools in three districts of Maharashtra.
- Informal discussions with the study team leader on the hygiene concerns relating to street foods led a leading pickle manufacturing concern in the city to examine the commercial feasibility of producing these foods at a hygienic, mechanised, central processing facility and franchising these through the existing vendors. CSSS's contacts were used to discuss the idea with vendors and a proposal for support from a financial institution was prepared and submitted. The proposal preparation was quite detailed and advanced but the idea did not ultimately materialise as competing proposals for investment were found to be more viable. However, the manufacturer when met by the case writer did not rule out the possibility of taking on the venture sometime in the future.

⁹ In the opinion of the project team, the underground nature of this economy, involving a complex equation of bribes and payoffs to various municipal and police authorities was an important reason for their disinterest in tackling the problem.

2.3 Enhancement of Outcomes

Outcomes from this study could have been enhanced by a series of steps:

1. The institution of a project advisory committee consisting of representatives of different interest groups affected by the research - municipal authorities, consumer fora, hawkers' union, local NGOs - could have added a much needed dynamism to the project. Setting up of such an advisory group would have helped create a mandate for CSSS, provided a forum for discussing issues of conflicting interest, helped the different user segments to 'buy in' into the research being conducted and ultimately ensured the diffusion and utilisation of research results by concerned agencies. This point is of importance not only to this project but to all such interventions in the public arena involving a complexity of interests and actors. Here an action centred research network methodology, with the initiating agency assuming no more than the role of lead agency or catalyst, is likely to be more fruitful in terms of impact than a traditional research and dissemination methodology. Getting together of a viable committee is of course by no means an easy task and it is here that support from the donor by way of lending presence and by helping sell the idea to important interest groups can be usefully deployed.

2. The study was logically broken up into different stages i.e. the census, sample survey, microbiological testing, dissemination. Had a greater amount of strategic input (possibly from an IDRC programme officer or from a project advisory committee) been provided at the conclusion of each stage and the beginning of the subsequent stage the study could have been better tailored for action and impact. Thus, for example, faced with the concrete information that there are some 1500 vendors of street food in Pune the study did not sufficiently analyse its consequences in terms of action needed and continued to the next phase in very much the same manner as it would have had there been 4000 or 10,000 vendors even. Similarly, the geographical information available was not correlated to traffic problems to focus on key areas or the bacteriological information available used to define a dissemination strategy in the next stage. Had a more interactive approach been followed with the results of one stage feeding the research in the next the final impacts could have been quite substantial.

3. Outcomes from this project could also have been enhanced by linking it to other urban informal sector projects supported by the Centre. There was much in the project which could have gained from a meaningful exchange of information, ideas, methodologies from similar projects.

2.4 **Public Relations:** This project is a typical sample of bits and pieces of work that get done by donor agencies, which while good in themselves, simply don't add up to any visible impact. While not good material for a public relations exercise it is excellent fodder for preparing case material for the Centre's internal consumption.

List of Persons Met

1. Dr. Meena Bapat, Principal Researcher for the project.
2. Dr. A.P. Kulkarni, Director, Centre of Studies in Social Sciences, Pune
3. Mr. Yashwant Thakar, Team Member, Centre of Studies in Social Sciences, Pune
4. Dr. Savita Paknikar, Consultant Microbiologist.
5. Dr. Dileep R Ranade, Scientist, Microbial Sciences, Agharkar Research Institute, Pune
6. Dr. Pradeep Chordia, Director, Chordia Food Products Limited.
7. Street food vendors at Pune Station, Laxmi Road, Fergusson College Road, Jangli Maharaj Road and Deccan localities of Pune.

Summary of Reach and Impact for Inland Fisheries (Nepal) Project No. 3-P-82-0191

Potential Beneficiary/ User	How Benefit	Extent actually benefited/ affected	Factors helping (+) or hindering (-) impact	Potential for future benefit
1. Families in the Indrasarobar catchment	There are 416 families living in the dam's catchment area, who were the target population for adopting the research results.	High. Some 200 families are members of the Fish Growers' Association and are actively involved in fishing. Of these 40-60 families are engaged in cage culture. Training and input support is available to all families from the project office.	<u>+ factors:</u> <ul style="list-style-type: none"> • small landholdings and the need for additional sources of livelihood. • development of an economically viable technology by the project. • earlier success of cage culture in Pokhara area to demonstrate to and motivate farmers. <u>-ve factors</u> <ul style="list-style-type: none"> • risky occupation • limited access to capital for investment. • natural and manmade calamities 	High. There is still huge untapped potential for spread of cage culture in the dam area. The activity is likely to expand gradually over the years.
Local people in other potential dam sites	Through spread of the activity to other regions.	Low. Activity is yet to spread to other middle hill areas.	<u>-ve factors</u> The rate of expansion of large dam projects with huge inundation areas has been slower than envisaged at the start of the project, due to the adverse environmental impacts associated with them.	Medium. As other projects get completed some amount of transfer of technology and skills will take place.

Fisheries Development Division	Manpower development	High. Senior, middle and junior level staff trained. Two PhDs, 6 MSc level. Trainees holding key positions within HMG/N. Capacity to set and manage own research agenda developed.	<u>+ factors</u> <ul style="list-style-type: none"> entire gamut of training needs - long term, short-term, exposure trips etc.- covered by project. close linking of training and research work and doubling of academic supervisors as consultants to the project. 	Medium. The benefit received from manpower development is already in place. No enhancement of the same is expected at this stage.
Other countries in the region	Through technical exchanges and provision of expertise.	Medium. Expertise and training provided by project trained personnel to PNG, Vietnam, Laos and Bhutan	<u>+ factors</u> <ul style="list-style-type: none"> Availability of resources and support from FAO/ UNDP for technical co-operation and exchanges. Nepal's membership of Network of Aquaculture Centres in Asia (NACA) 	Medium to High depending on the continued flow of resources for this purpose.

3.0 Project No./Title : Inland Fisheries (Nepal) - 3-P-82-0191

3.1 Description of Project

Fish are a major source of protein in Nepal, as in other Asian countries. The creation of reservoirs for irrigation and generation of electricity creates with it an enhanced potential for development of new fisheries. However, little was known about the productivity of new, relatively, cool hydro-electric impoundments in the context of Nepal. The project sought to redress this gap at two levels: 1) through the generation of reliable, comprehensive data on cage culture biology and economics in the newly created Indrasarobar Reservoir on the Kulekhani River in central Nepal, to serve as a model for other under construction or planned reservoir sites and 2) via the establishment within the Fisheries Development Section of HMG/N, a human resource base in fisheries sciences capable of developing and sustaining a high calibre research programme. Thus a research programme complemented by extensive training support were the main components of the project, which was a joint initiative of the erstwhile AFNS and FAD Divisions¹ of the Centre.

Objectives

The overall objective of the project was to develop a program for the rational development and exploitation of fisheries in Kulekhani Reservoir in Nepal. The specific objectives as delineated in the Project Summary were as follows:

- 1). To make a detailed limnological and fisheries biology survey of Kulekhani reservoir.
- 2). To test cage culture of selected species of carp and other related species if initial natural productivity warrants it.
- 3). To examine the economic aspects of the suggested development.
- 4). To develop a unit within the Fisheries Development Section capable of carrying out similar programs in other inland water bodies of Nepal.
- 5). To train Royal Nepal Government Fisheries Development Section staff in the necessary procedures on reservoir utilisation and management.

Strategy

In addition to the two core components of biological/ limnological research and training, the project had an outreach component targeted at local fishermen, socio-economic base-line and impact assessment studies and dissemination workshops. Each of these is briefly described below:

- **Research Component:** The research work undertaken examined reservoir fisheries from several separate but inter-related angles: a) A limnological study was initiated to obtain basic physical, chemical and biological data relevant to potential fish yields. b) A study of the characteristics of the watershed, including variables such as rainfall, livestock density, crop cover and cropping practices etc., was undertaken in order to determine the annual nutrient and water inputs to the reservoir. c) Cage culture research studies were instituted across different years and replicates in order to determine optimum species ratios, stocking densities and seasonal growth patterns. d) Surveys to determine the indigenous species composition in the Kulekhani river and changes in composition due to the impoundment were also conducted and the open water fisheries potential of the reservoir assessed.

¹ Agriculture, Forestry and Nutrition Sciences (AFNS) and Fellowships and Awards Division (FAD) respectively.

The research work undertaken was of high quality, knit as it was with the degree trainings awarded by the project. A large amount of consultant time was allocated to the project, with experts in the aquaculture field combining supervising graduate student research with monitoring the progress of the project, advising senior staff and training junior staff. The interlinking of the degree awards with the field activity components of the project was particularly successful in obtaining more rigorous research standards, greater personal interest and good quality supervision input into the project. This strategy of combining research work with training was again replicated at the national level with the project paying stipend to 7 MSc students of the Tribhuvan University to base their dissertations around relevant topics and undertake their fieldwork on the project site.

- **Training Component:** Training was provided at two levels to meet the objective of a creating a national capacity to handle reservoir fisheries, both for the present project and for future use. 1) Advanced academic degree and diploma training was arranged for senior staff and 2) short courses were provided for junior technicians. Degree instruction was provided in Canada and diploma training in Australia. Short courses were taken in Malaysia, Thailand and at the reservoir site. The details of the long and short duration trainings provided as well as exposure trips arranged are furnished in Annexure 1. A total of two fellowships, three M.Sc.s, one diploma and seven short term technical courses abroad were supported by the project. In addition, a two week technical training was organised on site.
- **Outreach/ Participation Component:** Following the initial success of the research component, a number of cages were set up and stocked to demonstrate cage culture techniques to local fishermen. Training for local people in cage culture techniques along with exposure trips to the Pokhara valley fishery station to observe an active cage culture industry, was provided by the project. Funds were accessed from The Agriculture Development Bank of Nepal under its " Small Farmers Development Project" to enable selected farmers to take up cage culture. A " Fish Growers' Association" was promoted, on the pattern of other such associations promoted in the Pokhara region, in order to take on the work at the community level in a more organised and co-ordinated way.
- **Socio-Economic Studies:** A socio- economic baseline survey was conducted by a local consultant in 1987 and followed up by a socio -economic impact study in 1994 by the same consultant. Both of these studies were fairly detailed and comprehensive, taking into account a large number of demographic and economic variables.
- **Workshops:** An international workshop on Reservoir Fishery Management and Development in Asia was organised under the aegis of the project in Kathmandu in November 1987. The workshop was attended by about 40 participants from different parts of Asia and from Canada and about 30 papers, in general of high quality, were presented and were later compiled into a publication encapsulating the current state of technology on reservoir fisheries in Asia. A second national level workshop on Human Resources Development in Fisheries Research in Nepal was organised in April 1992 and attracted participation from different fisheries development centres, relevant ministries and planning authorities and from a cross section of donor agencies. The proceedings of this workshop were published by the Fisheries Development Department.

In general, the strategies adopted by the project can be adjudged to have been successful in meeting its objectives. In particular the strategy of dovetailing the research and training objectives into a neatly enmeshed and integrated whole worked well, as did the strategy of meeting the entire spectrum of training needs from fellowship awards to on-site training and exposure visits.

Inputs/Activities

A total grant of CAD 351,600 was provided towards this project by the Centre over a six year period starting 1983. Much of this grant went towards training and provision of consultant inputs into the project. Consultants were intimately involved with every stage of the project. The feasibility study and initial design of the project was done after site visits by and in consultation with two experts from the Freshwater Institute, Department of Fisheries and Oceans, Canada. Further two senior faculty at the Department of Zoology, University of Manitoba combined graduate student research supervision with project monitoring missions. Experts inputs

were also availed of to conduct an on-site training for junior staff on data collection and recording and to put together the format and proceedings of the international workshop organised under the project.

Context

The IDRC project cannot really be viewed in isolation and must be seen in the context of the overall work done by HMG/N in the fisheries sector with the support of other donors. Cage culture and inland fisheries were initiated around the Pokhara valley in the seventies by the Japanese Overseas Co-operation Volunteers (JOCV) and later launched as a major programme with technical assistance from FAO/ UNDP. Support for infrastructure development was provided by the Asian Development Bank. The support provided by IDRC was used in tandem with support from other sources - the work at Indrasarobar being a logical next step to the Pokhara work i.e. to explore the feasibility of carp cage culture in the cooler middle hill reservoir site; and the provision of advanced training to fisheries department staff being a natural corollary to the development of fisheries infrastructure and centres across the country. In monetary terms the IDRC share was minuscule but nevertheless managed to be effective and visible due to its occupation of a very specific and well-defined niche - i.e. the research and manpower development dimension of the overall fisheries sector strategy of HMG/N.

Other aspects of the context that need mentioning are the fact the reservoir site has experienced three natural and manmade calamities since 1992 - two years of abnormal flooding and more recently a dredging out of the reservoir for cleaning by the Nepal Electricity Authority without prior warning to fishermen - which have resulted in huge losses to the fishing families and have consequently slowed down the rate of expansion of the activity in the Indrasarobar reservoir.

Also going against initial expectations that the model developed could be replicated at many other sites across Nepal, is the fact that there is a growing consensus across Asia that big dam projects with large submergence areas should be avoided as they have too many negative environmental impacts. Consequently the available sites for reservoir fisheries are now expected to be fewer than projected when the activity was started.

5.2 Project Outcomes

Outputs (Products, services, processes)

Among the important outcomes of the project are a better trained fisheries department with a significantly enhanced research capacity within HMG/N, the creation of a permanent field centre at the reservoir site and the evolution of a local institution in the shape of a fishermen's co-operative. Other outputs include the reports and publications already described in a preceding section.

- **Capacity Building:** With five full time degree/diploma awards and several short-term technical trainings, the IDRC project contributed in a significant way to manpower development within the fisheries department. Presently the positions of both head of the Inland Fisheries Program within the Fisheries Development Division and of the Fisheries Research Division at the Nepal Agricultural Research Council are occupied by the two personnel whose PhD training was supported by the Centre under the project. Similarly, the MSc awardees are also holding key positions within the government in different regional centres (see Annexure 1 for details). This trained manpower has also been usefully deployed by the country, with support from FAO/ UNDP, to give consultancy and training to other less developed countries. Nepal is also a member of the Network of Aquaculture Centres in Asia Pacific (NACA). Details of exchanges between Nepalese experts and countries in the region are provided in Annexure 2.
- **Permanent field centre created:** The field centre created at the Kulekhani reservoir site for the implementation of the project was accepted as a permanent field centre of the department of fisheries, HMG/N upon completion of the project in 1992. This centre continues to provide extension services and technical support to local fishermen. It is concerned with the timely support of inputs, liaison with the fishermen's co-operative and training of new entrants (including women farmers) into cage culture. This

continuation and institutionalisation of the field office beyond the life of the project is an affirmation of its perceived utility to the government and people of Nepal.

- **Village institution created:** Under the aegis of the project the Indrasarobar Fish Growers' Association was set up in 1987 and formally registered into a co-operative in 1997. It currently has a membership of about 200 families and is governed by a 13 member executive committee. The association is involved with both capture fisheries and cage culture in the reservoir. Licenses to fish in the reservoir are issued only through it and a fee of Rs.2/kg catch is levied upon members. For cage culture it liaisons with the project office for provision of training to new participants and for the supply of fingerlings. It also organises and manages the protection and nightly guarding of cages on a rotational basis. The Association has an independent fund (currently Rs. 20,000 Nepali Rupees) and is important in representing the interests of local fishermen. That recent losses to fishermen, caused by the carelessness of the Nepal Electricity Authority while dredging out the reservoir, were partially reimbursed by the government can be attributed in some measure to the fact of the existence of a collective representing the interests of fishermen. All told, the fishermen's association is one of the more critical outcomes of the project in terms of its long-term sustainability and ultimate success.

Reach (Beneficiaries)

In a sense the project worked at two levels i.e. 1) at the level of the specific project site and 2) at the level of research and demonstration which would serve as a learning ground/ model for other sites. In the first instance, the target beneficiaries could be described as the 416 families living on the periphery of the Kulekhani reservoir, while at the second level intended reach is more difficult to specify but would comprise of a range of governmental actors and donor agencies involved with water resources development in Nepal, in general, and with reservoir fisheries in particular.

So far of the 416 families around the reservoir site, about 200 are members of the fishermen's' association and actively involved in fishing while a smaller subset of about 40-60 families are engaged in the more capital and labour intensive cage culture activity. The cage culture activity is still in a state of expansion and it is difficult to predict at what percent adoption rate it will finally stabilise. This will depend on a number of other factors such as returns to farming, land holding sizes and surplus labour availability with these families. However, the entire target group can be adjudged to have been reached in that they are aware of the possibilities and can access training and inputs from the project office should they decide to opt for cage culture as an economic activity.

The reach of the project at the level of a demonstration has been limited in the sense that no similar project has subsequently been initiated in Nepal. However, interviews with policy makers and senior officials in the department of agriculture as well as with staff of other donor agencies revealed a high degree of awareness and respect for the accomplishments of the project and a recognition that it had created a national capacity to handle reservoir fisheries in the future.

Impact

Impact can again be explored at two levels i.e. impact on the fishermen participating in the project and impact at the broader policy level.

Impact on the participating families

The impact assessment study completed in 1995² as well as interviews with fishermen conducted by the case writer seem to suggest tangible benefits in terms of incomes and improved standards of living of the participating families. These are described below:

² Nirmala Adhikari, report entitled "Impact of Inland Fisheries Project on Farmers Living Around Indrasarobar Reservoir, Kulekhani, Makwanpur District, Nepal" submitted to IDRC.

- **Enhanced Incomes:** On a sustainable basis the annual value of fish from the reservoir is estimated to be around Nepali Rs. 2.5 million or CAD 62,500.³ In per family terms, gross fishing income was reported as varying from NR 11000 to NR 51000 with an average of NR 26000 in 1991-92 by Adhikari et al. Average net income was estimated at NR 13400 which compares quite favourably with average net income from farming which was estimated to be around NR 15900.
- **Reduced Income Disparities:** Since cage culture fishing is a highly labour intensive activity it has been adopted by a large number of small and marginal farmer families, as against those with larger holdings and consequently less surplus labour. Thus Adhikari et al. report a levelling out of income disparities in the region due to this project intervention.
- **Improved quality of life:** Fishermen interviewed on site by the case writer reported an improved quality of life as a consequence of the project. Specific mention was made of better nutrition, improved housing, clothing and education, ability to pay off loans and to pay for marriages of offspring.

Impact at the governmental level:

- **Enhanced Research Capability:** The IDRC strategy of supporting two fellowship awards is distinct from that of most other donors active in the sector in that the emphasis of other donors has been on short term technical training of direct relevance to the project at hand. Thus the Centre's support is widely perceived to have been 'empowering' in nature in that it has helped create a national capacity to manage and run its own research and development programmes. The current head of fisheries research in Nepal was previously the project leader for the IDRC project. A broad range of research topics is currently under study at NARC. Annexure 3 provides a profile of current research - while not all of it is a direct outcome of the Centre's support, it is nevertheless an indirect outcome of the project.
- **Enhanced Risk of Brain Drain:** The provision of degree training by the project was initially opposed by HMG/N on the grounds that it may ultimately result in the taking up of more lucrative assignments abroad by the trained scientists and the drain of trained manpower from the country. While so far none of the trained scientists have left the country the chances of this happening in future cannot be entirely ruled out. However, the extent of drain is not expected to go beyond one or two individuals and on the balance the country has already gained substantially from the higher trainings received by its personnel.

5.3 Enhancement of Outcomes

While the project has had significant impacts already, it is tentatively being suggested here that outcomes could perhaps have been enhanced if the following aspects had obtained a greater emphasis:

- **Fingerling production:** The availability of quality fingerlings locally is a constraint to the expansion of the activity. Currently, fishermen are entirely dependant on the supply of fingerlings from the Hetauda centre routed through the Kulekhani centre. A simultaneous promotion of private nursery development in the region may have been a useful strategy. Signs of private fish nurseries emerging in the forthcoming season spontaneously were visible. This can be expected to be a positive outcome.
- **Credit and insurance:** The supply of capital and the ability to take risk currently constrain the ability of other families from undertaking cage fish culture. To some extent the project did liaise with the Agricultural Development Bank of Nepal to enable farmers to take credit. To the extent that tie-ups with other sources of funds could have been facilitated, the rate of expansion of the activity could have been hastened.

³ The estimated losses from the dredging out of the reservoir by the Nepal Electricity Authority in 1996-7 were Rs. 2.2 million of which Rs. 0.9 million was compensated to the cage culturists, the rest being open water fishes.

- **Interdepartmental co-ordination:** A reservoir project entails a large degree of co-ordination between the different authorities. To a large extent dams are seen as the preserve of electricity authorities, irrigation authorities etc. and fisheries is only a peripheral activity. Hence the onus of bringing their work and its role in the life of local people to the attention of other governmental agencies and achieving the necessary co-ordination must lie with the Fisheries Department. A failure to achieve co-ordination between the different agencies lead to huge losses to fishermen. In the wake of this the Fisheries Development Department is preparing a concept paper for inter-departmental co-ordination. This can be expected to be beneficial in averting future crises and optimising gains from the reservoir.

5.4 Public Relations:

The project has served to develop a positive image of the Centre and its work in the recipient country and has had beneficial outcomes at the local and policy levels. It could be used as an illustration of the kinds of partnerships the Centre enters into and their results.

Annexure I: HMG/N Personnel Trained with IDRC Support under the Inland Fisheries Project

I. Long term Training

Name	Qualification Obtained	Year	Institute	Present Position
1. Deep B Swar	Ph D	1988-1994	University of Manitoba, Canada	Chief, Inland Aquaculture and Fisheries Program, Dept. of Agriculture (DOA)
2. Bhola R. Pradhan	PhD	1988-1993	University of Manitoba, Canada	Chief, Fisheries Research Division, Nepal Agricultural Research Council
3. R. M Mulmi	Diploma	1992-93	Decan University, Australia	Technical Officer, Nepal Agricultural Research Council
4. K Upadhya	M Sc. (not completed)	1991-93	University of Alberta, Canada	Fisheries Development Officer, Fisheries Devt. Div., DOA.
5. S. N Yadab	M.S	1993-95	C.L.S.U, Philippines	Fisheries Development Officer, Fisheries Devt. Divn., DOA
6. H.S Misra	M.S	1993-95	C.L.S.U, Philippines	Asst. Fisheries Development Officer, Fisheries Dev. Centre, Hetauda

II. Short Term Trainings Under the Project

Name	Training Topic	Duration	Institute	Present Position
1. R.M Mulmi	Laboratory Techniques	4 weeks	National Inland Fisheries Institute, Thailand	Technical Officer, Nepal Agricultural Research Council
2. B.B Silwal	Laboratory Techniques	4 weeks	National Inland Fisheries Institute, Thailand	Technical Assistant, Fisheries Devt. Centre, Kulekhani
3. A.K Rana	Laboratory Techniques	4 weeks	National Inland Fisheries Institute, Thailand	Nepal Agricultural Research Council

4. P Tripathi	Laboratory Techniques	4 weeks	National Inland Fisheries Institute, Thailand	Working with the pvt.sector in a related field.
5. B.K. Thapa	Laboratory Techniques	4 weeks	National Inland Fisheries Institute, Thailand	Working with the pvt.sector in a related field.
6.G.B.N Pradhan	A q u a c u l t u r e Economics	4 weeks	University of Peratania , Malaysia	Fisheries Development Officer, Fisheries Dev. Centre, Janakpur

III. Exposure Trips

Name	Places visited	Purpose
Dr. B.R Pradhan	Thailand, Sri Lanka, India, Singapore	Visit relevant projects/ institutions
Mr. A.K Rai	Japan, Singapore, Thailand, India	To attend workshop/ visit institutions
Mr. B. C Shrestha	Japan, Singapore	To attend workshop/ visit institutions

Annexure 2: Contribution of Project Personnel Within the Region

1. Dr. D. B Swar, spent 2 months in 1992 in the New Col Reservoir, Vietnam under a FAO TCP project as an expert on cage fish culture.
2. Mr. A. K Rai, served as a cold water fisheries expert in Papua New Guinea for one month in 1996, under a JICA assisted project.
3. The Fisheries Development Division, Nepal has provided training to several batches of medium level technicians from Bhutan, Laos and Vietnam on general fish culture, cage fish culture and cold water fish propagation.