

Kerala Reservoir Fisheries: Resource Development or Welfare Programme? A Case of Commons and Technical Co-operation.

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Paper presented for discussion and comments only

Wolf D. Hartmann¹

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513 NORTH PARK
INDIANA UNIVERSITY
BLOOMINGTON, INDIANA 47

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CPR

1. Introduction

This paper relates some experiences with *commons* (CPR) and projects of technical co-operation in natural resource development.² We realise that natural resource development, as any other development, is not limited to foreign-funded projects. However, projects of technical co-operation are an important form of development intervention. They display a concerted effort with a defined objective and geographical area and are time-bound, aiming to provide initiatives and innovations in priority-rated areas of concern. They also provide an interesting interface of different perceptions of and approaches to development, and, ideally, should contribute the best of two worlds.

The paper builds upon an example of common-pool resource management and common-property regime formulation in the context of a project of technical co-operation in reservoir fisheries development in South India. It is organised in three parts. The first recapitulates some general observations regarding *commons* and technical co-operation. The second part provides an analysis of reservoir fisheries development in Kerala, which, so far, has culminated in a project of technical co-operation between the governments of India and Germany. The third part contemplates on the 'lessons learned', and makes some conclusions and recommendations with regard to the relevance of common-property regimes and institutional development in the planning and implementation of projects of technical co-operation in natural resource management and development.

2. Commons and Technical Co-operation

More often than not projects of technical co-operation in the development of natural resources such as water, fish, pasture and forest, that is, common-pool resources, have set out with the aim to "establish" or "introduce" a system of "rational" or "sustainable" resource management. In doing so, agencies of technical co-operation have largely ignored the fact that natural resource management systems already exist, for better or worse, having emerged through time and are in full process of further development. Looking back, we might excuse this omission in the early foreign-funded projects in natural resource.³ It remains to be seen, however, if more recent projects have changed their approach in any significant way.

¹ Indo-German Reservoir Fisheries Development Project, Freshwater Fisheries Research Station, 678 651 Malampuzha, Kerala, India. From 15 June 1996 onwards: PAPEC, IBAMA/GOPA, Av. Rio Branco 3900, 60151-000 Fortaleza, Brazil.

² With *commons*, or CPR's, we mean both common-pool resources and common-property regimes. Technical co-operation is used synonymous to international (both bi- and multilateral) development assistance, development aid, etc

³ KURIEN (1985), for example, gives a vivid description of this attitude in the Indo-Norwegian Fisheries Project, the world's first internationally-funded project for fisheries development, which started in the early 1950's.

In "establishing" management systems through projects of technical co-operation, management by the state has been favoured. While this is probably due to the fact that, normally, counterpart agencies in technical co-operation are government organisations, the fact that this is the management form favoured in the respective donor countries may have also contributed to it (THOMSON 1994). Thus, in addition to not recognising the dynamics of local or national resource management, the fact that management of common-pool resources occurs not only under the authority of the state, but under common-property regimes as well, has largely been overlooked.

This is surprising as, in particular the latter management regime, common-property, provides important conditions for sustainable natural resource development, that are, presently high on the agenda of agencies of technical co-operation. These conditions are:

- traditional or indigenous knowledge that is, local expertise, is available regarding natural resources, their use and management; this expertise is frequently lacking in official, government organisations (BERKES and FOLKE 1994);
- there is participation by the user-community in resource management, which is a necessity for its sustainability, in particular in view of a frequently observed 'presence-absence' of government departments (see, among others, BERKES 1989);
- and lastly, the importance of common-pool resources for the poor in rural areas makes their use and management particularly attractive as a vehicle for poverty alleviation (see, for example, CHAMBERS, SAXENA and SHAH 1989; PASHA 1992).

Indeed, agencies of technical co-operation could not avoid recognising the opportunities offered by common-property regimes and community-based common-pool resources management, and today we are witnessing increasing attention paid by such agencies to exactly these concepts.⁴ Besides the aspect of indigenous knowledge systems, particular interest is being given to 'co-management', that is, the sharing of responsibility and decision-making in resource management between the state and a user-community.⁵

Yet, even where donors have recognised CPR as a promising starting point, or even context for technical cooperation, there are very few pro-CPR policies and programmes actually underway, and it is only slowly that insights from the CPR framework are finding their way into natural resource projects.⁶ Among the reasons stated are: the psychology and operational style of development agencies, that favours privatisation and modernisation; the complexity of CPR's, which does not lend itself easily to the culture and procedures of development agencies; and CPR management's characteristic of being "a process rather than a one-shot product" (JODHA 1995). By and large, practice is lagging behind the language of development rhetoric (CHAMBERS 1995; CHAMBERS and RICHARDS 1995).

However, it may not just be the lack of will, vision or ability of development bureaucrats to see the potential and make use of old or new forms of commons in actual project implementation. Scholars of commons, too, have largely by-passed this interface. Most CPR specialists have dedicated themselves to the analysis of the functioning or non-functioning of traditional CPR regimes. To a

⁴ Among the first agencies to highlight the potential of the common-property resources (CPR) framework in technical cooperation was the World Bank (BROMLEY and CERNEA 1989, MAGRATH 1989). Since the World Bank's "discovery" of CPR and related phenomena, other agencies have followed suit.

⁵ While the Food and Agriculture Organization of the United Nations (FAO 1993, IPFC 1994) has recently studied the potential of community-based natural resource management in coastal fisheries development, the International Center for Living Aquatic Resources Management (ICLARM) has initiated a major research project on fisheries co-management in 1993 (POMEROY and WILLIAMS 1994). Regarding 'co-management' it is interesting to note that this concept had been practiced over considerable time and with positive results in developed countries (e.g. Canada, USA, Norway, Japan and Germany, among others). Surprisingly, only now this concept is being considered in projects of natural resource management promoted by exactly the same countries.

⁶ See statements made by N.S. Jodha and L. Soefstestadt, both of the World Bank's Environment Department at the Bodø IASCP Conference, May 1995 (IASCP 1995b).

lesser extent they approach the question of CPR's in natural resource management and development induced by technical cooperation projects.⁷

A reason for both, that is, the lack of consideration of CPR's in the formulation of development projects and the lack of discussion of the practical aspects of CPR regimes in the scholarly debate, may be the lack of involvement and action by development practitioners, particularly those in the field, at these levels.⁸ Yet, it is in the field that a number of interesting experiences with the CPR framework in technical cooperation have been made, as the following section shows. This paper is, thus, an attempt to bring 'a view from the field' (or, a 'view from the commons') to the attention of both bureaucrats and scholars of development.

3. The Kerala Reservoir Fisheries Commons and Technical Cooperation

3.1 Commons in Projects of Inland Fisheries Development

Without having been planned at the outset, the development of commons has become, almost by happenstance, a starting point for the reorganisation of inland fisheries use and management in a number of technical cooperation projects in Brazil and India, with which the author has been associated (HARTMANN 1990; ARAVINDAKSHAN and HARTMANN 1995).⁹ Similar experiences have been made by others elsewhere.

The Brazilian example, a case of co-management in Amazon fisheries, belongs to that category of common-property situations as has been analysed and reported from many places around the world. Here, well-organised and highly conscious traditional local user-communities are defending their fish resources, crucial for their subsistence, against outside commercial fishermen. Exclusion of licensed fishers from officially unacknowledged 'community fishing grounds' is considered illegal within the existing legislation, apart from the legal consequences of the violence sometimes used. The project's contribution is twofold: it helps the riverine communities to organise and regulate the fisheries among themselves as well as between the local users and outside fishermen; it also helps the federal authority concerned to find legal and organisational solutions to the conflicts that have occurred and to create conditions for sustainable natural resources use and management by *all* users.

However, such clear cut situations are seldom found in rural development practice, and the conditions encountered are often more complex and, frequently, very contradictory. Often there are no 'customary' models to fall back on. Yet, as the case below demonstrates, it may still be useful to promote certain principles of common-property regimes derived from experiences elsewhere. The Indian example is, possibly, typical of 'real-life'-situations of common-pool resources use and management encountered when implementing projects of natural resource development. In comparison to the famous 'textbook'-cases from Swiss Alps and Polynesian lagoons, it is probably more illustrative of the potential and limits of CPR framework applicability in technical cooperation.

⁷ Only about 6% of the papers presented at IASCP's fifth meeting in Bodø, which had as its theme 'Reinventing the Commons', actually dealt with CPR's in projects of natural resource development (IASCP 1995b). The main subjects treated by the overwhelming majority of papers were: descriptions of present-day CPR's and their changes consequent to government or other interventions, historical accounts of CPR regimes, and contributions to CPR, or natural resource management, theory.

⁸ Thus, while 77% of the 350 (about 10% of IASCP members) or so contributors to IASCP's Bodø conference were members of academic institutions, only 19% were "natural resource management practitioners", i.e. 6% representatives of user organizations and 13% were members of (governmental and non-governmental) development agencies (IASCP 1995a)!

⁹ The projects are 'PROJETO IARA - Fisheries Management on the Middle and Lower Amazon, States of Amazonas and Pará, Brazil' and 'Reservoir Fisheries Development in Northeastern Brazil' implemented by GOPA-Consultants, and 'RESFISH - Indo-German Reservoir Fisheries Development Project Kerala' implemented by the group of consultants COFAD/GOPA on behalf of the German Agency for Technical Cooperation (GTZ).

3.2 The Project

Since 1992, COFAD/GOPA have been assisting the Kerala Government in developing its reservoir fisheries. The initial project design was essentially a continuation of an already existing approach which the State's Department of Fisheries had apparently followed over a period of ten years or so. It has, at its centre, the establishment of a culture-based capture fishery in a number of reservoirs for exploitation by cooperatives of fishers from socially and economically marginalized populations. The objectives are to sustainably increase fish production and, thus, income for the maximum number of families from groups of people classified as deserving beneficiaries.

The project started about a decade after the Fisheries Department had initiated its activities. Applying a more systematic, comprehensive and, in particular, "scientific" methodology than before, its objectives were to improve the fishery's basic technical components, such as the production of fingerlings for reservoir stocking, fishing technology and marketing. Furthermore, it sought to improve the efficiency of the existing fisher organisations.

Very quickly, however, it became clear that without changes of a more substantial nature there would be no major improvements in results other than those experienced by Kerala's fishery developers in the past. In a nutshell, these results were the following: little if any increase in recorded landings had occurred; there was little involvement of the targeted population in reservoir fisheries and its management; and no improvement in incomes of fishers and thus, their living conditions could be perceived so far (RAMALINGOM 1993).

Further, project members were surprised to learn that while the fishery is meant to be 'reserved' for members of the socially and economically marginalized Scheduled Caste and Scheduled Tribe (SC/ST) communities, there are also 'illegal' fishers operating at most if not all reservoirs. Though their number is not known accurately, it is believed to be substantial. It became clear that the importance of 'reservoir fisheries' and 'fisher co-operatives' was and is perceived differently by the project's various actors. These actors are those who operate prominently and in the foreground, such as government employees, foreign fisheries specialists and local fishers, and those who act indirectly, but, nevertheless, make their presence felt, such as poachers and local politicians. For all of them, the importance of reservoir fisheries went and still goes beyond the project's immediate objective of resource utilisation and management.

These phenomena could be traced back to the particular institutional arrangements within which reservoir fisheries development was taking place. Here, three levels could be distinguished: the actual fishery at the reservoir; the promotion of reservoir fisheries within the framework of the state's policies and, finally, the 'project' in the context of its 'project cycle' and the development policy of the donor country.

To reformulate these arrangements wherever possible, it was felt, might not only lead to greater participation by all partners in the development effort, but might also provide important frame-conditions for the achievement of the project's mainly physical. Lastly, they might even generate benefits hard to come by through conventional technical inputs and interventions. Consequently, and possibly exceeding its initially limited ambitions in this field, the project became involved in institutional reformulation and development (ARAVINDAKSHAN and HARTMANN 1995).

3.3 Analysis of Kerala Reservoir Fisheries

Below we describe and analyse the Kerala reservoir fisheries commons before and particularly since the start of project intervention. In organising information about this management system, we borrow some elements of the Institutional Analysis and Development Framework (IAD) as originally presented by OAKERSON in 1986 (FEENY 1994).¹⁰ Keeping in mind the differences in

¹⁰ The material presented here is based on detailed studies of various aspects of reservoir fishing and its organization as well as on practical work carried out with fishers and their cooperatives at five 'pilot reservoirs' during the project's Orientation Phase, 1992-1995. In presenting *the reservoir and the cooperative*, we are summarizing the features most commonly observed. This information was first compiled for an institutional analysis of the Kerala reservoir fisheries commons, carried out to provide a basis for its institutional reformulation and development (HARTMANN 1995 a/b)

actors' perceptions, the framework's four sets of factors, namely resource attributes, decision-making arrangements, patterns of interaction between those involved in resource use and management, and outcomes are being examined from different points of view. In order to facilitate comparison, the different actors' views have been summarised in Table 1.

3.3.1 Attributes of the Resource

The construction of dams and reservoirs for irrigation in the South Indian state of Kerala in the late 1940's and early 50's created a new, multipurpose water resource of about 30,000 ha of waterspread for utilisation by local populations.¹¹ We are here concerned mainly with the fishery resource.

Only 10 out of the 30 reservoirs are presently officially open to fisheries. The recorded catch from these reservoirs was only 135t in 1993/94. Even when including illegally landed fish by "poachers", reservoir fisheries contribute less than 1% to Kerala's total fish production.¹² The fishery potential of reservoirs is generally said to be underdeveloped and under-utilised (PAUL and SUGUNAN n. d.). It depends, to a certain extent, on the stocking of reservoirs with fingerlings of economically wanted fish species, for subsequent grow-out in the open water and harvest by authorised fishers, utilising exclusively gill-nets.

For the government, more specifically, the Department of Fisheries (DOF), reservoir fisheries are of little importance from a production-, value- and employment point of view. Yet, this fishery is important from a socio-political point of view, as it provides DOF with an opportunity to comply with a policy directive, in force since 1979/80. This directive stipulates that each government department would earmark (and spend) a percentage of its budget equal to the proportion of SC/ST's in the population for programmes benefiting Scheduled Castes and Tribes.¹³ For the government, reservoir fisheries are also a source of revenue. The reason to take up organised reservoir fisheries by DOF in the 1970's was to obtain revenue for the state's coffers. To this effect, the department conducted its own fishing operations through fishermen on its payroll. This was discontinued in the early 1980's and substituted by fishing through SC/ST-fisher co-operatives against payment of a 'royalty'.

One more "resource" available to the department within the reservoir fisheries management system is the project itself. It provides funds for technical activities, creates career opportunities for staff (training and study tours, promotions) as well as, involuntarily, creates access to equipment and funds by department personnel for personal benefits. Furthermore, by transferring responsibility for reservoir fisheries development to a foreign-funded project, DOF also provided a justification for its own lack of success and performance in a politically sensitive scheme.

For the wider target group, that is the SC/ST population, too, reservoir fisheries does not play a major role as a source of income. Participating families, that is families with one or more members enrolled in the local fisher cooperative, are only about 10% of the total eligible population resident in the reservoir's immediate vicinity. Of those enrolled in fisher cooperatives, only about 50% are

¹¹ Different water uses are. paddy cultivation; domestic water use by rural population, drinking-water supply to urban population; fishing. Other reservoir uses are. draw-down agriculture (illegal!); pasture use by local and outside herders and dung collection

¹² Kerala is India's main fish producing state, with a total production of 605,000 in 1994 (GOK) 1994 a/b). About 92% of catches come from marine fisheries, while 8% come from inland fisheries (backwaters, rivers and reservoirs)

¹³ Common-pool resources such as wastelands, forestry and water resources have been made available for the utilization by SC/ST communities through 'socio-economic upliftment programs' by a number of state governments. This suggests on one hand that governments understand the role and importance of common-pool resource use as an important subsistence strategy of marginalised rural communities. On the other hand, it has been observed that governments' concern in doing so is not so much to contribute to poverty alleviation, but rather to pacify a certain segment of society and to maintain important vote-banks (BAUER 1991) Common-pool resource use and management in such programs, which have frequently been implanted without due consideration to common-property regimes in place, have shown adverse effects and negative results (JODHA 1992, 1995, MATHUR 1993, RAO 1994; SENGUPTA 1995).

actively participating in the fishery. Yet, even though participating in cooperative fishing, the families do not depend economically on this activity. In all 'fisher families', agricultural labour is the most important source of income. However, fish is not the only resource within the reservoir fisheries system. Although *government services and welfare measures* are not a direct product of the fishery as such, the promotion of cooperative fishing occurs within a wider scheme of special assistance to SC/ST communities. This implies that, through the cooperative framework, member families are able to access benefits that have nothing to do with fishing (e.g. sewing-machines). *Group identity and political recognition* is another important by-product of the resource use system. By participating in the fisher cooperative, SC/ST's are able to make themselves felt in an organised and official way.

The donor agency had no specific proposal for the use and management of the reservoir fisheries as a common-pool resource, let alone under a common-property regime.¹⁴ Indeed, its perception of the reservoir fisheries resource was strangely value- and conflict-free. It was based on the assumption, that reservoir fisheries was the utilisation of aquatic organisms for the benefit of "bona fide"-fishers and their families. These benefits would be in the form of financial income directly derived from full-time fishing, wherever possible.¹⁵

3.3.2 Decision-Making Arrangements

Property-regimes, that is, management and decision-making arrangements, in reservoir fisheries have largely been formulated by external agencies, e.g. the Fisheries and other government Departments. They have changed over time in response to institutional 'demand' and 'supply'. In general, institutional demand and supply are largely decided by the socio-political goals as well as the implementing capacity of the government and its respective departments. In our case, decision-making arrangements are, at present, characterised by an organisational blueprint imposed by the State, that of the 'cooperative', which determines most of its elements.

The fishery itself is subject to state legislation on inland fisheries, contained in two fisheries acts that go back to the times before reservoir construction, and which do not provide any specific rules and regulations for fishing in reservoirs (DOF n. d.). There are no closed seasons or mesh-size regulations, nor limits to the amount of fish that can be taken either individually or as a group. The general restrictions and conditions provided under the fisheries acts include the prohibition of destructive fishing methods, such as fishing with explosives.

Rules on fishing rights in the reservoirs are unclear. In only one case was the reservation of the fishery for cooperative members and, consequently, the exclusion of other "undefined" fishers, based on a legal document. In all the other cases it is assumed that the same rule is valid. But even if clarified legally, it is how the rule is commonly understood and applied by the relevant groups of (local and external) decision-makers which matters.

Regulations that govern the functioning of the cooperative are laid down in its by-laws. They prescribe entry and exit rules, define the residency requirements of its members, as well as its technical and economic functions. Thus, fishing is co-operatively organised. Gear and craft, which the government provides free of cost through assistance programmes, are co-operatively owned, and major inputs, such as petrol, are financed by the cooperative. Furthermore, fish marketing is a

¹⁴ In German technical cooperation for example, at the moment the discussion concentrates rather on such concepts as 'self-help', 'gender', 'indigenous knowledge', 'participatory appraisal and planning', 'process orientation' and others (SCHWEDERSKY and SIEBERT 1994). If at all, policy guidelines and programmatic approaches for projects in the area of resource protection and development refer only *en passant* to "autochtoneous traditional management systems" as important elements in natural resource conservation (ibid)

¹⁵ This "official" perception of fisheries as a resource in technical co-operation can be found in a number of publications, see for example Bilto (1991) and BMZ (n. d.)

major function of the cooperative.¹⁶ Not because the cooperative is particularly good at it, but rather as the sharing of sales proceeds of marketed fish is the main source of cooperative income and government revenue. These sharing arrangements, which are similarly laid down in the by-laws, stipulate that the fisher retains 50% of the sales proceeds of co-operatively marketed fish, that 25% will go to the cooperative and another 25% to the government as a resource user fee ('royalty'). To enable the levying of 'royalty', the fish prices are fixed by the Fisheries Department.

There exist no rules or mechanisms for the negotiation of multiple resource use. Water, for example, is necessary for both fishing and irrigated agriculture. At present, the requirements of fishers are not included in considerations of water resource allocation, which are solely determined by the needs of farmers.

Similarly, decision-making regarding another important fallout of the reservoir fisheries system, i.e. government welfare funds, is controlled by officials of the district administration. Though there is an elaborate, comprehensive and integrated planning procedure in place, viz. the Habitat Development Plan, beneficiary participation in decision-making, which is so essential, is lacking (SURESHKUMAR and HARTMANN 1995).

In sum, cooperative fishers have so far not developed in any significant way rules or other institutional mechanisms of their own, formal or informal, legally binding or not.¹⁷ By and large, there are no management regulations that have originated from, or are specifically applicable to, the situation as perceived by this group. Furthermore, there are no effective arrangements in place which would enable a sharing of decision-making on the utilisation of the fishery nor of the government welfare resources.

A major instrument for involving all actors in decision-making regarding project formulation and implementation is the donor's target-oriented project planning procedure (ZOPP). ZOPP has been criticised by some as simplifying complex social systems, as being culturally biased, as being not sufficiently participatory, as creating an artificial consensus between the actors, as concentrating on strategic and project objectives while relegating important frame conditions to underlying assumptions, ect.¹⁸ Indeed, possibly with the exemption of foreign project staff, few of the actors feel particularly bound to the decisions made. While decisions on day-to-day project activities are taken within the framework of its Plan of Operations by the project's Monthly Staff Meeting, the project has created two mechanisms that should improve the participation in decision-making on strategic and policy issues by both the target group ('Co-operative Action Planning and Implementation - CAP') and the counterpart agency ('Project Steering Committee').

3.3.3 Patterns of Interaction

Patterns of behaviour of cooperative fishers are strongly influenced by the group's long experience as beneficiaries of governmental assistance programmes directed at members of SC/ST communities.¹⁹ In matters relating to such schemes, and the undertaking of reservoir fisheries by cooperatives is such a case, the group shows a very pronounced dependence on government support and patronage. Yet those belonging to the group do not necessarily exhibit the same

¹⁶ Unlike in marine fisheries, where marketing of fish for local consumption is largely in the hands of women from the fishing community, women members from reservoir fisher families do not consider fish marketing a socially acceptable activity.

¹⁷ An exception here are certain operational rules that have been developed about the joint use of fishing craft, which, in some cooperatives, are used alternately by different fisher groups due to a shortage of craft and gear. Furthermore, fishing groups have developed rules for the operation of gear belonging to and sharing of catch with members temporarily absent on wage labour in the agricultural or other sectors.

¹⁸ See, for example, BIERSCHEK, SAUER and SCHAFFT 1989, KOHNERT and PREUSS 1990, RAUCH 1993.

¹⁹ The 'schedules' of discriminated castes and tribes were drawn up as long as sixty years ago with a view to impart 'preferential treatment' to those listed. Since then, but in particular since the 1980's, innumerable and often parallel programs have been implemented, frequently targeting the same beneficiaries (BAUER 1991, MENDELSON and VICZIANY 1994).

dependence, “culture of poverty” (BAUER 1991), or “strategic behaviour” (BIERSCHENK 1988; ELWERT and BIERSCHENK 1988) in other relationships and aspects of life.²⁰ It seems that the group’s characteristic of a *bureaucratic* and *welfare category* (MENDELSON and VICZIANY 1994.) has a strong bearing on the group’s relationship with the outside world, in particularly with government organisations.

The official resource user organisation, the cooperative, was founded on the initiative of fisheries officers in the early 1980’s. It was the organisational solution found by the Fisheries Department to comply with a particular policy directive from 1979/80 onwards. This directive stipulates that each government department would earmark a percentage of its budget equal to the proportion of SC/ST’s in the population for programmes benefiting Scheduled Castes and Tribes (GOK 1988; MENDELSON and VICZIANY 1994). People hitherto engaged in other activities, particularly agricultural labour, were encouraged and given incentives to join the cooperative. Until today, its members see it, therefore, as a government affair. This perception is reinforced by the peculiar catch-sharing arrangement between the fishers, the cooperative and the Fisheries Department. Furthermore, the cooperative is effectively managed and controlled by a department official who acts as its secretary. Indeed, some cooperative members consider themselves “government employees”. Instead of pursuing the objective of a self-reliant, independent and strong user organisation, for many the proximity to the Fisheries Department, this ‘special channel’ to government funds and other welfare measures, was and is in itself a strong attraction.

Access to welfare funds is thus an important ‘by-product’ or sideline of the reservoir fisheries resource system. Furthermore, the fisher cooperative is the only *SC/ST organisation* at village level and, thus, an organisational expression of SC/ST identity.

While members are conscious of the political importance of their organisation, they, generally, do not bother about its more operational aspects and regulations. Office bearers, let alone simple members, usually do not take the initiative to enforce the co-operative’s rules. As a consequence, attendance at meetings is unsatisfactory, fish caught is frequently sold outside the cooperative marketing system to avoid the sharing of proceeds between members and their organisation, inactive members are allowed to continue in the cooperative, etc.

Interaction between ‘legal’ and ‘illegal’ fishers is more or less harmonious. After all, some ‘illegal’ fishers are neighbours, while others are SC/ST’s living outside the co-operative’s residential limits. Most are as poor as the co-operative members anyway.²¹ Occasionally there are threats, intimidation, violence and theft of fishing gear. Cooperative fishers, however, categorically refuse any attempts of recognition of the so-called “poachers” as fishers in their own right. They fear they would be “taken over” if that occurred. This, it seems, has to do with the overlapping of a professional, i.e. *fisher*, and a socio-political, i.e. *SC/ST*, identity. In defending the first, the group actually fights for the latter issue. As AGRAWAL (n. d.) points out in a paper on politics on the commons, state interventions, such as the ‘reserving’ of reservoir fisheries for SC/ST communities, “create new spaces where older differences are tested and contested”.

Government officials lament the unsatisfactory involvement of SC/ST “beneficiaries” and blame it on the group’s “irrational” behaviour. But though instrumental in setting up cooperative reservoir fishing, they too do little to enforce its rules and regulations. Actions are limited to last-minute interventions in cases of severe misadministration, or, occasionally, to the confiscation of nets and fish caught from “poachers” by overzealous fisheries inspectors. But it is the Department’s lack of interest in determining resource property, normally considered a prime task in resource administration, that is most striking. Fisheries officials keep SC/ST members in the belief to enjoy an exclusive right over the resource, a claim with important politico-economic connotations but which may not hold in court. Petitions by “poachers” to be recognised as fishers are not attended

²⁰ See also SCOTT, who observed that “the poor sang one tune when they were in the presence of the rich and another tune when they were among themselves” (1990).

²¹ While the proportion of SC/ST’s in the population is around 12%, there are about 40% of the population living below the poverty-line (BAUER 1991).

to; but at the same time, their exclusion from resource use or inclusion in obligations connected with it are not enforced (or enforceable). Thus, while the Fisheries Department maintains a populist and paternalistic approach, it jeopardises the creation of an important condition for sustainable resource use and management.

Lastly, patterns of interaction emanating from the project itself are ambivalent. While, for example, the project brings benefits, such as promotion, for staff of the Fisheries Department, proposed changes in the officers' roles are frequently resented. The traditional physical output-oriented approach of the Department is difficult to harmonise with the external agency's process-orientation. On the other hand, time constraints and other forms of pressure inherent in the external agency's project planning and implementation cycle are not conducive to its own objectives, imposing initiative where 'participation' was meant.²²

3.3.4 Outcomes

The criteria frequently used within the framework of IAD to evaluate the outcomes of a management system are efficiency, equity and sustainability of resource use (OAKERSON 1986; 1992). The Kerala reservoir system however, comprises various "resources" and, partly diverging, resources use objectives, some of which are declared, and some of which are hidden.

The declared resources and resource use objectives are those formulated when reservoir fisheries were first conceived as a poverty-alleviation programme in 1978, as well as developed during various project planning workshops from 1989 onwards. They essentially relate to the fishery itself, the utilisation of which should improve (i) *income* ('crossing the poverty-line'), (ii) *productivity*, (iii) *ecological and organisational sustainability*, (iv) *involvement of target population in reservoir fisheries and activities directed at its improvement* ('occupational mobility'), and (v) *empowerment*. Here, the outcomes observed have been so far: Average incomes of families participating in reservoir fisheries are, in most cases, still below the poverty-line. Recorded fish production varies greatly from reservoir-to-reservoir and year-to-year, and productivity is generally below levels known from similar waterbodies (or from other fishers). So participation of active fishers in activities aimed at an improvement of the fishery is highly erratic and considered unsatisfactory by officials concerned. Mismanagement of cooperative funds and corruption is not infrequent. While it is yet too early to assess its ecological sustainability, the fishery is certainly not economically and organisationally sustainable, but depends on continuous external inputs and support.²³

But while the dependency on continuous external inputs and support causes concern to one actor, the very maintenance of political and bureaucratic power and control through patronage and clientelism are the non-declared or hidden resources and resource use objectives of others. This apparent contradiction in desired outcomes makes the counterpart agency, which, after all, has set the "development" process in motion, and to a lesser extent the "official" target group, i.e. SC/ST fishers, so far the main winners at the cost of the "donor's" objectives.²⁴ However, in order to maintain the development process, ways and means have to be found to approximate the differing views and perceptions and to make the contradiction workable. Thus, more than merely creating better framework-conditions for the realisation of technical inputs, institutional analysis with a view to identify areas of consensus between different actors, and institutional development to provide for appropriate arrangements becomes a necessity for project continuation.

²² This 'paradox' is being reported from a number of projects, where agencies exert influence while desiring to build up local self-capacity (EYBEN and LADBURY 1995)

²³ FOLKE and BERKES (1995) propose the following working assumption. "Social/ecological systems which have survived for extended periods of time are sustainable."

²⁴ The ultimate outcome desired by "government", however, i.e. the maintenance of vote banks to safeguard the victory of the ruling party in the elections, could not be achieved: the governing party lost the elections of April/May 1996, which were, more than ever before, strongly influenced by the votes of the poor, SC/ST's, etc. (see, for example, "Weaker sections, stronger clout", THE HINDU, April 21, 1996).

4. Institutional Development

According to the institutional analysis and development framework, *outcomes* may show the *existence* of a difficulty that manifests itself behaviourally in the *patterns of interaction*. The *source* of the difficulty, however, most probably lies in a mismatch between the *attributes of the resource* and the *decision-making arrangements* in place to govern it (OAKERSON 1986). In *designing* optimal institutional arrangements for a system of sustainable resource use, the starting point is the resource's attributes, in particular its economic attributes. This is followed by determining its crucial relationship ('fit' or 'match') with the decision-making ('management') arrangements. 'Mismatches', that is, *areas in need of institutional reformulation* theoretically identified in an earlier institutional analysis (HARTMANN 1995 a/b) are indeed those which have shown themselves as critical in the establishment of a sustainable culture-based capture fishery, before and during project implementation.

In the following chapter we summarise proposals for the institutional reformulation of different aspects of reservoir fishing which the project has made since its activities started. Some of these proposals are under implementation, others are being negotiated.

4.1 Proposals for Institutional Reformulation

4.1.1 Fingerling Production and Stocking

The project proposes a change from the concept originally pursued of making cooperative fishers responsible for producing fingerlings of the 'desired species' of Indian Major Carps *and* stocking of the reservoirs. Apart from the enormous financial requirements, which, at present, are beyond the capacity of cooperative fishers, resource enhancement and/or conservation are tasks not easily taken on by resource users. This is even more so in cases of unclear resource ownership. The project therefore suggests a separation of the two tasks of fingerling production and stocking.

Small 'hatchery groups' made up of cooperative members who are paid wages by their respective cooperatives, will now produce fingerlings as a commodity on a quasi-private basis for sale to any interested buyer at going market rates. Fingerling production, thus, becomes a separate commercial or income-earning activity of the cooperative and its members. A major buyer of co-operatively produced fingerlings will be the Fisheries Department.

On the other hand, stocking of the reservoirs will be the responsibility of the Department of Fisheries. This is justified by the enormous finance required, as well as because of the lack of enforcement of resource ownership provided by the State. Thus, the Department will stock the reservoir to generally improve the resource base. At least part of the costs should be recouped through the levying of licence fees from *all* fishers.

4.1.2 Fishing

Common-pool resources or common-property regimes do not require communally organised resource use. It is resource management which should be community-based. In our case, the fisher cooperatives are both production and marketing cooperatives. Fishing is at present co-operatively organised and gear and craft, which the government provides free of cost through assistance programmes, are co-operatively owned. Though making available only an insufficient number of craft, government assistance acts as a strong deterrent to fishers investing in their own means of production. Underfishing of the reservoirs is mainly due to this fact. Furthermore, gear and craft are subject to wasteful use. The project proposes to privatise fishing craft and gear. Though still subsidised, replacement of gear and craft or investment in new units will now require financial contributions from individual or groups of fisher-owners.

The project further proposes to diversify fish stocked, and fish species targeted, to increasingly utilise species indigenous to South India's inland waters. This implies, also, a diversification in fishing gear, going beyond the gill-nets exclusively used at present. It is in this context that the project attempts to tap 'traditional' ecological knowledge of the resource users. Diversification of the fishery should lead to improved productivity and incomes. This is an important prerequisite for

the development of a local system of rights and responsibilities which evolves only for resources deemed important for a community.

4.1.3 Fish Marketing

There are important relationships between fisheries management and marketing arrangements. Frequently, marketing interventions, such as the establishment of price-fixing mechanisms, are used to influence, that is, usually, restrain resource exploitation. In our case, however, the liberalisation of fish pricing is intended to enable fisheries management. In the past, prescribed marketing through the cooperative was counterproductive, as it has contributed to bypassing of this channel and non-declaration of landings by fishers. Consequently, the cooperatives lost out in income, and the Fisheries Department in revenue as well as in information on the fishery important for its management. The Fisheries Department will now stop fixing of fish prices, as it has become unnecessary with the change in user-fee arrangements from a percentage of sales value to a lump-sum licence fee.

Similarly as fishing, fish marketing through the cooperative will cease to be obligatory. Fishers will have the right to choose their own way of disposing off their produce. The cooperative, thus, will have to compete within the established marketing channels.

4.1.4 Regulating of Access and Enforcement

The 'royalty' charged at present, which is a percentage of each fisher's sales proceeds, will be substituted by a lump-sum *licence* fee. Ideally, *all* fishers will pay the licence fee, that is, cooperative and non-cooperative resource users. This obviously means that all fishers active at the moment will have to be legalised. In promoting this the project advocates the formation of a defined and *finite fisher community*, which has stakes in the use and management of this particular natural resource. All who have an interest or obligation with regard to reservoir fisheries will have to be brought into this community. As we have seen, this is a major necessity (and design principle) for successful common-pool resources management (see also OSTROM 1992). The number of licences to be issued will be established in deliberations between all parties concerned and on the basis of information on the resource and its exploitation compiled with the assistance of the project.

Once fishing by a licensed group of *fishers* is enforced (by the State) and illegal, i.e. non-licensed fishers are excluded, reservoir fisheries could be *leased* to the specific user group established at a reservoir. In case of a lease, the lessees will bear *all* management responsibilities (including stocking of the reservoir if deemed appropriate and necessary). The lease amount, however, will have to reflect the savings made by the State in reservoir fisheries management, that is, it has to be lower than the licence fees.

Limiting access to fishing and possibly displacing fishers has its own problems, as fishing is frequently a last resort for resource- and income-starved communities (CHARLES 1988). The project, thus, promotes income-earning activities *outside* fishing, though, wherever possible, fishery-related.

4.1.5 Resource Use Planning

This refers to both resources encountered at the reservoirs, that is, *fish* as well as *government services and welfare funds*. Instead of unilateral management decisions by government agencies, resources' utilisation will be planned and implemented based on the needs and priorities perceived by the community and laid down in its 'Cooperative Action Plan' (CAP). In CAP formulation and implementation, resource users will be able to count on the support of specialists from government departments concerned. Locally and communally formulated plans will be brought into the overall (government) planning process. Multiple resource use will be negotiated with competing resource users (e.g., irrigation and fishery use) in a joint Management Advisory Committee (MAC) to be established at each reservoir. CAP and MAC are two incipient institutional arrangements for joint resource management by its co-owners.

The project further creates conditions for, and seek to prepare, fisheries officials to assume the roles of technical specialists, who will intervene on request from resource users. It will also prepare them for the role of facilitators, who will orientate resource users on steps to be taken on community-originated proposals and their follow-up at the higher levels of public administration. The project here will concentrate on the formulation and promotion of enabling procedures. Of prime importance will be the establishing of data bases, as information is an important strategic element to strengthen cooperation and empower people for collective action.

4.1.6 Identity Creation or: Uncoupling the Cooperatives from the State

Direct involvement of the state in cooperative management through Fisheries Department officials who function as cooperative secretaries will be discontinued. Cooperatives will have to employ their own staff. This again means a redefinition of the Fisheries Department's role as, while losing old attributes, new tasks and powers will have to be assigned to it.

Empowerment of resource users and their organisations is the long-term aim. A medium-term solution in uncoupling the cooperatives from the state is, however, the involvement of NGO's, particularly in community organisation. This, again, is being promoted at present by the project.

4.2 Experiences in Institutional Reformulation and Development

The proposals and initiatives for institutional development that have originated from the project have received positive attention so far and, especially on the technical level, acceptance in principle. This is not surprising as most of the suggestions (e.g. regarding fish price fixation by the producer; ownership of craft and gear by the fisherman; etc.) can be found, in principle, in the Kerala Government's newly formulated fisheries policy (GOK 1994). Alas, "...within the context of Indian state craft policy statements are not binding on any government or administration. Such documents, therefore have little to do with actual practice" (SINGH 1991 quoted in MADSEN 1995). And so the implementation of some of the proposals, which depend on government's action (e.g. regulating resource access and enforcement; uncoupling the co-operatives from the state, etc.), has been slow in coming.

Government's policy recommendations, which are supported by the project's findings and proposals, are political statements. They do not relate to the hidden agendas of agencies involved, which, however, greatly determine their implementation. The project thus finds itself in need of continuous negotiations with a view to approximate the declared and non-declared perceptions of "resource" and resource-use objectives.

Of more success has been the implementation of a resource use planning mechanism within the reservoir fisher co-operatives and communities, i.e. the 'Co-operative Action Planning and Implementation - CAP' framework (SURESHKUMAR and HARTMANN 1995). CAP, an annual, reservoir-specific cycle of resource use planning and implementation is presently in its third year in the project's first five reservoirs. Recently it has been extended to all reservoirs presently open to fisheries.

5. Conclusions

Technical co-operation projects in common-pool resource development are arenas for negotiation by different actors with often problematic relationships (ELWERT and BIERSCHENK 1988; BIERSCHENK 1988, QUARLES VAN UFFORD 1993). In fact, a "project" is not a single, but a multiple project, within which members of strategic groups (such as donors, national and international implementing agencies, target groups and others) fight for their often divergent interests.

While the project seemed to differ positively from the projects mentioned earlier, which largely ignored existing management systems, it might have sinned, on the contrary, in its uncritical way in which a, presumably, governmental development approach was followed. In fact, only during project implementation it became clear, that this "government approach", which was identified and

had been confirmed in a number of planning workshops, was mainly a projection of the donor's own perception of the "resource", the resource use objectives and resource user organisation. The government agency, which had set the development progress in motion, has its own agenda and has to make sure that its interests, which are different from the donor's, are being taken care of.

The paper shows that the analysis of relationships between the actors in a resource management system is of importance. This analysis is presently lacking in the planning methodology applied in German technical co-operation, where investigation is limited to a *participants' analysis*, which simply lists organisations and individuals with relevance to the project, but does not investigate into their relationships and their rules of interaction. The institutional analysis and development framework provides a good starting point. However, keeping in mind that natural resources, and particularly those of a common-pool type, are, besides being economic resources, also political and symbolic resources, and as such are constantly contested by a number of contenders, institutional analysis should include, in a stronger way as it has done so far, socio-political parameters in its investigative framework.

And to answer the question, which has been put in the title of the paper: Kerala Reservoir Fisheries is both, natural resource development and a welfare programme. It might be a particular task of the project to find and develop institutional arrangements, through which the gap between these so far contradictory perceptions could be mitigated.

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Table 1: Summary of Actors' Views

Actor	Resource Attributes	Decision-Making Arrangements	Patterns of Interaction	Outcomes
Target Group SC/ST fishers:	Fishery: not decisive for family income,	limited some operational aspects, determined by Co-operative Act and specific by-laws,	"beneficiary syndrome", dependency on government support; no action against illegal fishers, no acceptance of illegal fishers in their own right,	less than 50% participation, low level of productivity, low level of income, socio-political identity, special channel to government, 25% royalty contributes to lack of feasibility of "legal fishing", government support insufficient, paralysis of own institutional capacity.
	Welfare Funds: participation in co-operative fishing creates access to welfare funds channelled through DOF,	limited Habitat Development Plan, petitions to politicians, etc ,	"beneficiary syndrome", dependency on government support,	government support insufficient, paralysis of own institutional capacity,
	Project: part of government welfare activities,	indirect participation in ZOPP-planning workshops;	"beneficiary syndrome",	
	Socio-Political Identity:			maintenance of pressure on government, co-operative as platform for local politics,
"Poachers"	Fishery: regular activity, part-time, not decisive for family income,	not known,	independent, no action against co-op fishers, acceptance of legal fishers in their own right,	low level of technology, low level of productivity, low level of income, illegal fishing financially feasible.
Counterpart Agency ("Government")	Fishery: little importance from a production- (value-, employment-) point of view,	state fisheries legislation (not specific for reservoir fisheries), imposition of management regime of 'culture-based capture fisheries' for Indian Major Carps, imposition of blueprint of DOF-controlled "co-operative".	subsidies and interference ("carrot and stick"), no enforcement of rules, no maintenance of policy; no clarification of legal status of fishery, maintenance of control over reservoir, output-oriented,	continuity of control over reservoir, justification of own bureaucratic existence,
	Welfare Funds: reservoir fishery as an opportunity to comply with an important policy directive.	state co-operative legislation, imposition of blueprint of DOF-controlled "co-operative".	paternalistic, populist, complaints about target group's "irrationality",	compliance with political directive in excess of original proposal,

continued

Continuation: Table 1: Summary of Actors' Views

Actor	Resource Attributes	Decision-Making Arrangements	Patterns of Interaction	Outcomes
Counterpart Agency ("Government")	Revenue: reservoir fishery as a source of revenue,	determined by co-op by-laws, imposition of blueprint of DOF-controlled "co-operative".	"royalty" collected by DOF's "ex-officio secretaries",	compliance with political directive, though income is lower than expected,
	Project: financial and technical support,	sharing of decision-making on all levels, participation in ZOPP-planning workshops,	demanding; project as scapegoat (justification of bureaucracy's own incompetence, mystification of lack of success),	strengthening of bureaucratic position, showing of action, personal benefits,
Local Politicians	Welfare Funds: important to comply with policy directive, maintenance of vote bank, political power,	through District Development Council,	bureaucratic, populist, paternalistic, election,	election defeat;
	Project: expression of governmental welfare measures, maintenance of vote bank, political power,	indirect,	indirect,	election defeat,
Agency of Technical Co-operation ("Donor")	Fishery: means of improvement of livelihood and empowerment of community; Project: compliance with development policy,	promotion of "capacity building", promotion of decentralisation, establishment of "CAP", "participation" (ZOPP-Planning Workshop), "co-management" with DOF,	"participatory", process-oriented, "participatory", process-oriented, under time and other constraints emanating from 'project cycle'.	no fulfilment of objectives so far,