

Global Dynamics and Institutional Changes for Resource Management Along Cochin Estuaries

Rosewine Joy*

Abstract

Management of common pool resource in transitional economies is becoming a challenge to local communities as well as policy makers. Though local communities in Asia had a long tradition of community based natural resource management, but today they are faced with severe constraints to self organise in a fast changing environment. When natural resources are opened to forces of international markets; communitarian management methods fail to bring consensus among competing stake holders. This has led to various governance and institutional changes where livelihoods and environmental sustainability is questioned. Various methods and measures are adopted by communities to manage this dilemma, which have mixed results. This local experience in resource management is a road map for policy makers for sustainable resource management which promises better livelihood and environmental sustainability

Keywords: *Community-based conservation, Traditional Ecological Knowledge, Institutional changes; sustainability.*

Community-based conservation (CBC) has recently emerged as an innovative Institutional response for meeting the seemingly conflicting goals of poverty reduction and biodiversity studies (Shukla 2004). However in many traditional communities these concepts were well established as foundation for institution building aiming at livelihood protection and sustainable resource management. Institutions are built to bring consistency in relations so that livelihood of whole and ecosystem is protected. Traditional ecological knowledge held by local people itself was acting as a management tool for conservation of resources. Consequently, indigenous "conservation" may be, in many cases really indigenous conflict management. (McCay)

These communities work under more or less a closed system and traditional knowledge acts as the back bone of institutional building in these communities. At many times any external intervention makes these communities destabilize the system and make it vulnerable to livelihood insecurities and resource degradation. At many times these traditional institutional framework doesn't

* Research Scholar, School of Industrial Fisheries, Cochin University of Science and Technology, India.

have scope for absorbing external pressures and utilizing the opportunities keeping the conservation institutions intact. The ability of the communities to manage the external factors totally depends on their resilience. Some communities successfully utilize the local knowledge systems such as traditional ecological knowledge (TEK) as one of the enabling conditions that leads to the success and durability of CBC (Berkes 2003). However some communities discard local knowledge systems and move towards modernization and market oriented growth strategies which make traditional conservation measures collapse. Ultimately those communities end up in conflicts and resource degradation. The approach taken is through a case study of the Stake net fishery of Aroor-Arookutty in Cochin estuary that was honored by the Shastri- Indo Canadian Institute as one the seventeen initiatives in the year 2004

The Cochin estuaries where the research is conducted is a 242,600 hectares brackish water ecosystem with a treasure of biodiversity that supports multitude of livelihoods through a vibrant inshore small scale fishery. The study area "Aroor-Arookutty" are villages evolved in the 14th century, located in the southern end Cochin estuary. The Stake net fishery uses a fixed gears (fixed engine) in areas having good tidal flows and targets for prawns that have a lucrative export market. Stake net forms an important gear among the traditional fishing gear employed in the backwaters of Kerala, the component, perhaps second only to drift nets (Hornel 1925). The dominant gear used in the small-scale inland fishery is locally referred to as a Stake net (Oonnivala) and is used by small-scale fishers to harvest shrimp as they migrate from the estuary back out to the sea. This gear accounts for 57% of the total catch in the estuary and numbering 12,900 nets (Kurupu et al 1993) is the most prevalent gear used in Kerala backwaters.

The largest component of their harvest is shrimp, which makes more than one fourth of the catch (Lobe, 2002). The catch to a great extent depends on the tidal function of the estuary. The stake net fishing grounds are "locally called padu ground" and each single fixed engine in a fishing ground is called Stake net, locally called "Ooni Vala". The ooni's are the property of fisher which is regulated through various state and community institutions

The research methodology adopted for the study is participatory rural appraisal put forth by (Pido, M.D.; Pomeroy, R.S.; Carlos, M.B.; Graces, L.R 1996). The study will contribute to the emerging literature on community-based conservation; contribute towards strategies for effective use of traditional ecosystem knowledge in institution building, market interventions and institutional changes.

Community-based Conservation based on Traditional Institutions

Contemporary discourse on natural resources conservation and development is dominated by three major paradigms: the Classic approach, the Populist approach, and the Neo-liberal approach (Blaike et al. 1997; Brown 2002). The *neo-liberal* approach, which has been much in debate recently, recognizes institutions, policies, and markets as economic incentives to local people for sustainable biodiversity conservation (Adger et al. 2001). However, the neo-liberal approach or new conservation has been criticized by some scholars on two main grounds: First, the new conservation is seen as re-inventing the wheel of old styled conservation that is still top-down rather than being democratic and participatory (Brown 2003). Second, purely economic incentives, as envisaged in the neo-liberal approach, are considered inadequate and perhaps irrelevant from a community's perspective.

Ideally speaking in India natural resource conservation with community participation is existing for centuries; but communitarian arrangement were feudal hence top down in their approach. As a result conservation and development didn't go hand in hand. Hence fishermen belong to economically and socially backward Communities characterized by large families, low levels of income and literacy and a high degree of indebtedness and a conservative approach to life and vocation.

After independence more centralized government reforms were introduced to manage fishery. The problems of small-scale fishermen received little attention prior to independence. The post independence developmental effort too has been directed largely towards areas like establishment of research institutes, provision of training and infrastructure for mechanised fishing and deep-sea fishing, establishment of ice-making and refrigeration plants and improvement of domestic and export marketing. The benefits of modernisation have been garnered by a minority of energetic fishermen and non-fishermen who could assimilate modern technology, while the majority of fishermen, though marginally benefited by use of synthetic nets, higher market demand for fish and fishery products, etc., have remained virtually unaffected.

The commoners reorganized themselves with new communitarian institutions which favor market dynamics .As the focus was more on modernizing fishery for lucrative export market the Traditional Ecological knowledge on conservation fast deteriorated. This has led to some of the major issues (Kalpavriksha ,2001) include

- * Centralised, uniform models of development and conservation adapted by successive governments, have undermined the diverse, site-specific traditions and initiatives by communities;
- * There is inadequate understanding and recognition of CCA initiatives, and of their beneficial impacts to biodiversity, livelihoods, and social security;
- * Absence of decision-making powers with communities, legal backing to CCAs, and insecurity of tenure and control over natural resources, on which communities depend have hampered the initiatives;
- * Outside agencies have a role to play in CCAs, but very often they bring in

inappropriate (including financial) interventions that undermine the sustainability of these initiatives;

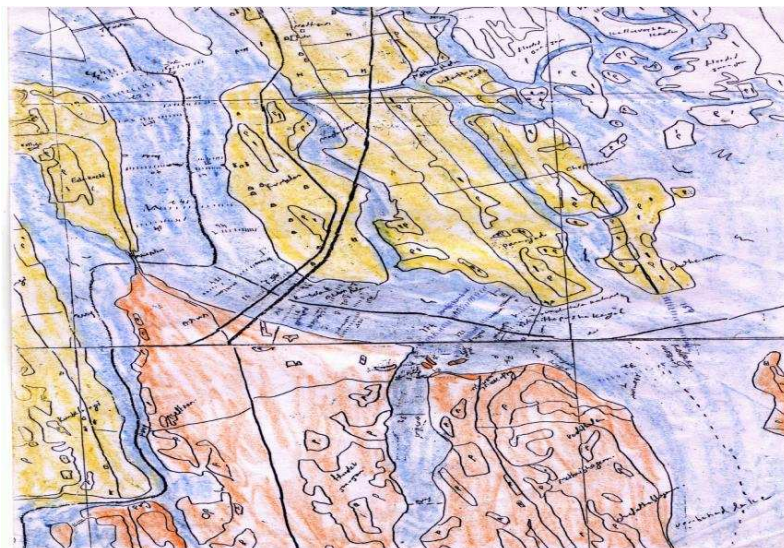
* Many donor-driven or official initiatives towards community participation in conservation have failed due to lack of transparency and accountability, inadequate transfer of powers and capacity, and lack of involvement of communities from the planning stage

The next section is based on field interactions that were held with local communities of Aroor-Arookutty villages along Cochin Estuaries based in South India.

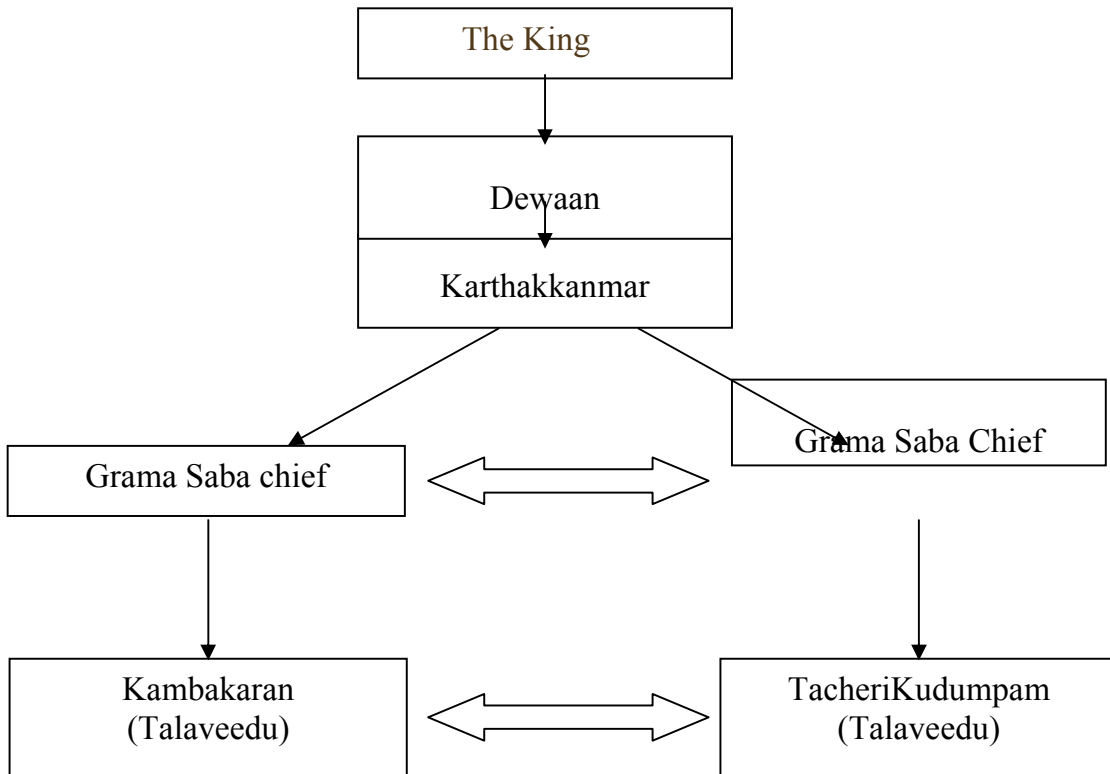
Traditional Institutions for fisheries management in Cochin Estuary

Stake net fishing originated 400 years back in Aroor- Arookutty area. The “deevera community” was given exclusive right to operate stake nets by the King. The Agricultural Department of Travancore King was entrusted with the duty of formulation and enforcement of law. A well formulated local village hierarchy was established to regulate stake nets. In this arrangement the King select a family “Talaveedu” and family is entrusted to manage stake nets in each village. A chief is selected from this family as the leader for management. Above them in the hierarchy level it is “Karthakkanmar” who are entrusted in taking petitions on conflicts on fishing. They keep a complaint book called “Beat Book” on which the complaints could be written and the Kings police would come and arrest them. Above them is the Dewan and above all the King. These Institutions survived till India enacted the Indian Fisheries Act in 1897.

Aroor –Arookutty Map

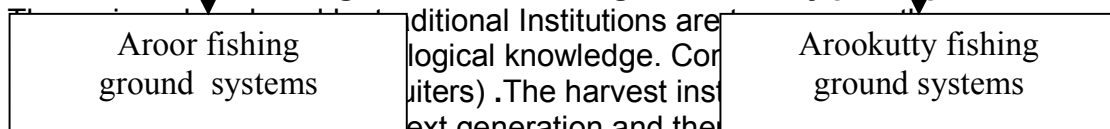


Traditional Institutional hierarchy in Aroor-Arookutty Stake net fishery zone till 1897 which has a history of 350 years.



Major Functions of Traditional Institutions

Conservation of fishing Resources through community participation



Traditional Institutions are... logical knowledge. Cor... (iters) .The harvest ins... protecting the resources for next generation and there by achieving sustainability. For example in Stake net fishery high tide fishing and usage of nets with smaller mesh size were punishable offence.

Monitoring

Communities actively participate in monitoring of these institutions. Any offence by a community member on harvest rules will be informed to the immediate highrarchy. If any stake net holder raises complaints against members of the fishing ground, the chief of talaveedu would call both the parties, visit the place in his canoe with them and resolve the crisis. They will be penalized through fines and any repetition will cost social exclusion. .Offended house will be separated by planting a special shrub called “Kitha “which mark him and his family separated from social networks.

Cross-scale interaction

The best practices followed in these traditional communities were cross scale interaction between different user groups of stake net fishery. If the conflicts were between rival paadus the chief of respective paadu systems will meet each other with petitioners and would resolve the problems are solved. The common temple grounds were used for arranging the meetings every fortnight to resolve issues. If boundary issues are in question both leaders will visit the location in their canoes and resolve the issues.

Rational Communication

The cross scale interactions between the communities were more focused on rational decisions for conservation rather than who governs the commons .This has helped them to bring into consensus many of the conflicting issues as priority were on conservation of resources from over exploiting and their sustainability.

Dynamics in local institutions due to the influence of global markets

While many communities has succeeded in maintaining their common property resources through collective action, in some cases pressures internal and external to the community has caused arrangements to collapse (Berkes,1986). Market forces eliminate inefficient property rights structure and introduce new arrangements better suited to exploiting economic opportunities (Demsetz 1967)

Institutions are important as resource allocation mechanism-markets and the fisheries department, for example, both have a role to play in allocating scarce resources.

By the mid-1960s the “modernization growth-oriented” model was introduced in Kerala. The single most important factor responsible for this was the rising demand for prawns in the international market. The waters off Kerala, being one of the world’s richest resources for the penaeid prawns, virtually became the main “breeding ground” for this model. Fisheries development in Kerala state soon became synonymous with increasing prawn harvest and foreign exchange earnings.

Rising demand for prawns in the international market, spurred by factors such as the enhanced growth of the United States and Japanese economies and also the former’s loss of access to supply from China bring focus to India and Kerala.

These demand-pull factors were outside the control of the local economy, and it was difficult to prevent fishery resources from being harvested in response to them. (Kurian, 1991). From a commodity formerly used to provide manure for coconut palms, prawns grew to become the “pink gold” of marine exports from India. In 1961-1962 the beach price of prawns was only 240 rupees per ton – less than even the price of mackerels which were considered the “poor man’s protein”. In 1971-1972 prawn prices reached 1,810 rupees per ton. Between then and 1984-1985 prices increased nearly sevenfold while the prices of oil sardines and mackerels rose by 184 and 213 per cent respectively (Department of Fisheries, Kerala, several years)

In 1950, the states take over the management of stake net fisheries By Travancore Cochin Act 1950 to increase its revenue. It has moved from historical ‘pattayam’ system to current state owned licensing system. After independence and formulation of Kerala state the stake net fisheries in this area come under the Fisheries directorate of Alleppy.

These changes in Institutional framework and economic opportunity in the form of prawn boom has brought significant changes in local institutions. The community has reorganised them self for utilizing the lucrative export market with institutions tailor made for the same.

Role of Community

The major change has happened is the change in role of fisher community. They have self - organised them self as owners of small scale fish processing units as well as middle men for processing units. Though this fishermen are minority, they were politically strong socially acceptable. The profit motive of this commoners forced them to break usual conservation rules of high tide fishing. The usage of nets with small mesh size for better catch started implementing. This has led to over fishing of juvenile prawns and there by resource degradation and instability.

Role of State

Though state has taken over Fisheries management from traditional landlords; the new system was centralised. These centralised administrators were unaware of ecological systems and local need of the community. The communitarian arrangement of monitoring collapsed with this system and new system was inefficient in handling the dynamics of the sector. The low capital investment on monitoring; absence of decision making power for community all led to large scale over fishing by illegal measures

Lack of Cross- scale Institutions

The major issue arisen out of these new changes are lack of cross-scale Institutions. The issues which were resolved through cross-scale dialogue between fishing communities every forth night got prolonged to judicial system

were cases are still pending for resolution for last 20 years. This has led to conflicts and violence and more and more violations in community institutions. Community started segregating based on cast, religion, political association, income level etc instead of one network of fishermen. In a way the community become weaker and individual interests become prominent. From a system where Indigenous conservation itself turns to be a conflict resolution mechanism, same moved to a system of violation of conservation rules as a counter act on conflicts.

Irrational Decision making

The informal sector, driven by market forces, was unavoidably sucked into the self-destructive development trend where conservation of resources were on the back stage. In a way community chose to be a free rider which led to over exploitation and resource degradation.

Responses on this dynamics from community, state & market

The responses towards these dynamics were opportunistic without long term strategies for development of sustainable resources and livelihood securities. In a way community, state as well as market forces failed to bring in conservation as an agenda of management of resources.

Community Failure:

The major community failure is in its loss of trust on 350 year old traditional ecological knowledge for institution building. The community also fail to self organize themselves in such a way where conservation and development is both achieved. Major reason is inability of existing as well as new leaders to bring consensus among fishing groups and guide them towards building community based conservation institutions which ensures development as well as conservation. However Community failure is in part a consequence of what A.Giddens, a sociologist has identified as "dis-embeddedness", the lifting out of locally embedded socio-cultural framework of important functions, like deciding where investment will be made, who will be employed and how profits will be distributed.

State Failure

Though state formalised many of the traditional institutions; they moved out the traditional institutional framework to the new system of centralized governance. Though traditional institutions are executed from a top-down order; it is only workable with community participation. Hence neither the institutions nor the new framework for institutions failed. State also failed to act as a regulator or guide to communities for helping them manage externalities like prawn boom. State also failed in having an efficient implementation mechanism to monitor these institutions. Low investment on infrastructure for monitoring makes it impossible for implementation. Though change was inevitable with new externalities; the

new institutional frame work was away from community and neither it contribute towards development nor towards conservation.

Market failure

By introducing Travancore –Cochin Act in 1950 ; the stake net fishery changed from old Plataea system to license raj. This change in notion of property rights also affected the system. It is quit evident that after introducing licensing system ; illicit nets has increased(Lobe). The lack of secure , exclusive property rights creates incentive and reward structure that encourage people to emphasize their on short term interests and to shift the costs of their actions on to other people ,the environment and the future. With exclusive, secure property rights in a resource, the 'externalities' can internally recognized and reconcile cost and benefit (McCay, 2000). With the new licensing system the market was not able to internalize

Conclusion

An enquiry on what happen to the conservation institutions over a period in theses estuaries shows that the state, community and market failed to manged global dynamics and create institutions which protect resources at the same time .Community and state also failure is recognizing traditional ecological knowledge systems for their resource protection. Low level of community participation in institution building also makes those institutions failed. The positive aspects of traditional institutional infrastructure was not incorporated the new institutional structure also aggravated the problem. Inability of state to regulate the externalities also made communities incapable of managing their resources. All theses aspects led to over fishing and resource degradation.

Bibliography

ADGER, W.N., T. A. BENJAMISEN ., K. BROWN, and H. Svarstad, 2001. "Advancing Political Ecology of Community in Natural Resources Conservation," *World Development* 27:629–49.

BERKES, F. 1986. Common property resources and hunting territories. *Anthropologica* 28: 145-162.

BERKES, F., 2003. "Re-thinking Community-based Conservation." *Personal communication*

BLAIKIE, P.K., P. Brown., P. Dixon., M. Sillitoe., Stocking, and L. Tang, 1997. "Knowledge in Action: Local Knowledge as a Development Resource and Barriers to Its Incorporation in Natural Resource Research and Development," *Agricultural Systems* 55:217–37.

BROWN, K., 2003. "Three Challenges for a Real People-Centered Conservation," *Global Ecology & Biogeography* (12)2:89–96.

DEMSETZ, HAROLD., "Towards a Theory of Property Rights." *The American Economic Review*. Volume 57, Issue 2. May, 1967, 347-359

KALPAVRIKSHA., 1991, "Community Based Conservation"

KURIAN, JOHN., 1991, "Ruining the Commons and Responses of the Commoners: Coastal Over fishing and Fishermen's actions in Kerala State, India *Discussion Paper No. 23*, May 1991

LOBE, KENTON 2002 "Governance in a small scale fishery, Local response and External pressures in Kerala India, Canada.

McCay, Bonnie J., 2000 "Emergence of self organized Cooperation" Indiana

PIDO, M.D.; POMEROY, R.S.; CARLOS, M.B.; GARCES, L.R. 1996. "A handbook for rapid appraisal of fisheries management systems (version 1)" *ICLARM Educ. Ser.* 16, 85pp

SHUKLA, SHAILESH KUMAR., (2004) "Strengthening Community-based Conservation through Traditional Ecological Knowledge", *Natural Resources Institute, University of Manitoba, Canada.*