

FISHING RIGHTS TO THE RIGHT PEOPLE? **Management options in crowded small-scale fisheries**

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ABSTRACT The article is a reply to the general demand for rights-based fisheries as *the* solution to fisheries problems in many developing countries. With examples from Vietnam, Indonesia, Mozambique and South Africa it is shown that the ‘classical solution’ of closing the fisheries as followed by Norway and many other industrialised countries, is not possible in many developing fishing nations. Closing access and redirecting fishers to other occupations are not viable options in the short run. Closing may instead harm the poorest, the ones most dependent on the open access nature of these resources. Based on this dilemma, the article discusses various alternative management options, trying to meet the challenge of providing ‘fishing rights to the right people’.

Introduction

Five years ago we had an interesting debate going on in *SAMUNDRA* Report, the magazine of the International Cooperative in Support of Fishworkers (ICSF). The starting point was a reflection by Derek Johnsen over the *Sharing the Fish Conference 2006*, held in Australia, pointing to the traditional dominance of the rich “temperate minority” countries over the Southern developing countries in matters of presentations, discussions and solutions (Johnsen 2006:11). Later, Ichiro Nomura, then Assistant Director General in the Fisheries Department of FAO came up with a reply, claiming that rights-based fisheries are the solution, but admitting that “one size does not fit all”, ending with the suggestion for a conference where focus should be on the challenge of allocating fishing rights in developing countries (Nomura 2006:25). This conference took place in Bangkok in 2008, with a wide range of stakeholders connected primarily to the artisanal sector. This article is an updated version of my presentation at the conference, giving me the opportunity of discussing further on some of the problems related to the blanket recommendation of introducing rights-based fisheries management.¹

In my original contribution I focused on the dilemmas of this approach and in particular on the problem that limiting access (through rights-based approaches) might harm the poorest, the ones most dependent on the open access resources. To be fair, let me quote Nomura more extensively:

The current variety of schemes, for formally allocating fishing rights has vastly expanded the range of fisheries and fishing situations to which rights-based schemes can be applied. They should apply to large- and

small-scale fisheries, both with large and small boats. They are, by far, the best tool to re-establish and formalize traditional fishing rights and thus, protect the rights of fishermen. Even ITQs need not threaten the livelihoods of small-scale fisheries, and they should not foster inequity if well designed (*ibid*:25).

On this occasion I have the opportunity to go a little more in depth, but first some considerations on how to understand the small-scale fisheries and their links to poverty and poverty alleviation.

A theoretical framework

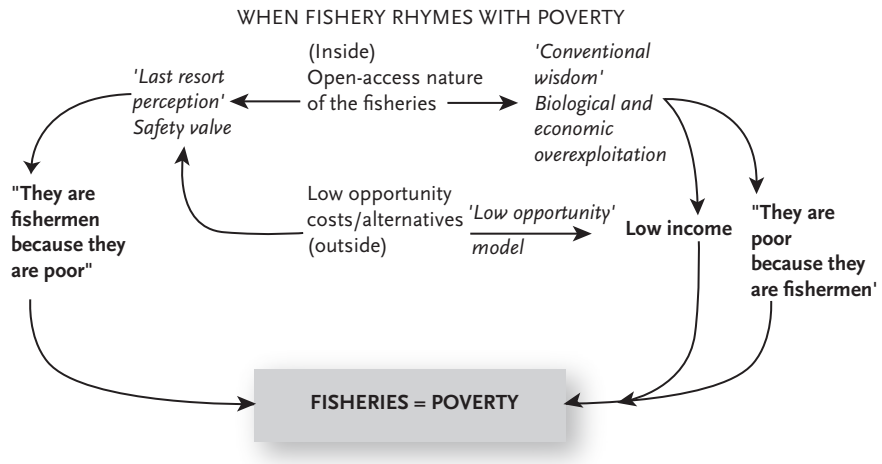
While donor agencies have gradually changed their priorities, more in favor of small-scale fishers and in particular targeting the poor (and for a period “the poorest of the poor”), the underlying logic has all along been that fishers in developing countries are generally poor, measured against any standard. However, as pointed out by Béné (2003, 2004), there is almost a complete absence of references to case studies from the fisheries in the current literature on poverty. Béné attributes this lack of references not to the number of fishing studies portraying poverty but to the nature of this scientific production, and to the way this literature proposes to explain the cause(s) and origin(s) of poverty in small-scale fisheries. Generally there seems to be two contrasting interpretations of the relationship between poverty and fisheries.

The first basically claims that “*they are poor because they are fishermen*”. Within this tradition there are two lines of reasoning. One has its origins back in Gordon’s (1954) classic paper on open access fisheries, an idea that was powerfully reinterpreted in Hardin’s (1968) seminal article, describing the tragedy of the commons. Here the open access nature leads to more and more people entering the fisheries, resulting over time in over-fished resources, an elimination of the resource rent and ultimately in the impoverishment of the fishers and their communities. This is a solid tradition, with a large number of contributions both from the scientific field and from the donor organisations (Pearse 1982; Panayotou 1982; Bailey and Jentoft 1990; FAO 2000; World Bank 1992). There is no doubt that overexploitation can be an important cause of poverty, but not necessarily *the major cause* (Béné 2003:953). While poverty is here explained as an *endogenous* effect, the *exogenous* origin of poverty is explained by showing the low alternative cost of labour in the fisheries. In Panayotou’s (1982) writing on the particular problems of small-scale fisheries he pointed to the fact that most fishers (in Asia) have a low alternative cost of labour, and with easy access and difficult exit they are “trapped” in the fisheries. In other words, here it is the employment situation outside the fisheries, which is most important. However, several writers combine the two explanations without making the necessary distinction, thus confusing the analytical understanding of what causes poverty in the fisheries.

The other major idea is that “*they are fishermen because they are poor*”, indicating that fishing is an employer of last resort, where those falling out of the

agricultural system can manage to eek out a living by fishing (FAO 2000). Common property resources are therefore extremely valuable to poor people, and any attempt to close the participation may result in increased poverty (Hara 2000; Jul-Larsen *et al.* 2003). What Béné (2003) characterizes as the “old paradigm” with its two pillars is presented in figure 1. Both approaches to poverty have been applied in a variety of donor-assisted fisheries projects.

Figure 1: The two pillars of poverty in fisheries (Béné 2003:957).



It is important to stress that the last approach (“they are fishermen because they are poor”) opens the way for a diametrically different policy than the two first options. If fishing is essential as an employer of last resort, within a much larger system of livelihood creation based on various resources and occupations, it is hard to stick to the idea of *sector* development (Allison and Ellis 2001). It is even harder to limit access in the classic way we have done in western, developed fisheries. On the other hand, unlimited access can cause severe damage to a developing fishery. So what should we do? This is where the institutional aspects come to the fore, that is, the simple (but in practice so difficult) aspect of distribution of rights and benefits. Is it possible to keep access open to the poor, or more strongly, to strengthen their rights to common pool resources, while at the same time limit the collective pressure on the stocks? Before we turn to a discussion of this issue, let us briefly examine the fishing rights approach and how it has been promoted over the last years.

Are fishing rights always right?

When the FishRights99 Conference was arranged in Freemantle (Australia) in 1999, the message was pretty clear: New Zealand and Iceland had, through their early adoption of ITQ-schemes, shown the way for other fishing nations. Other participants, representing industrialized countries like the US, the EU, Norway,

Australia and Canada, were in the process of introducing ITQs or similar schemes (IVQs or IFQs) in their main fisheries. The very few representatives from the South were either telling about their successful implementation (Namibia, South Africa, and Chile) of ITQ-schemes or tried to twist the right-based approach into community-based arrangements as in the case of India (Shotton 2000). Since then a massive literature has appeared, mainly addressing one type of rights-based management, namely the use of ITQs (Anderson and Holliday 2007; Beddington *et al.* 2007; Hannesson 2004 to mention but a few). While international organizations like the World Bank and FAO went out of their way to endorse ITQs in the 1990s, their more recent publications have been more moderate, acknowledging that ITQs may not be the only way forward, especially not for developing countries, with multispecies fisheries, many fishers involved and low institutional management capacity. For example in its influential report on fisheries; “Saving Fish and Fishers” (World Bank 2004) the case of the Java Sea fisheries in Indonesia is extensively covered:

Analysis suggested that the definition of individual transferable quota (ITQ)-type property rights was infeasible in this situation because of (a) a combination of the multispecies nature of the fishery and stock variability of pelagic species, making the setting of total allowable catch (TAC) difficult; (b) the number of fishers and the difficulty in assigning rights without prior monitoring or records of catch histories; and (c) limited infrastructure – including for monitoring and enforcement of compliance, or the development of quota markets (World Bank 2004:46, based on Squires *et al.* 2003).

Other writers have been more outspoken, claiming that rights-based management may do more harm than good. Jul-Larsen *et al.* (2003:91) claim, with reference to inland fisheries in Southern Africa, that

As has been the situation over the past 50 years, nothing indicates that a “no-management” solution on the part of the governments will lead to biological tragedies of these commons. On the contrary, too much government intervention may result in the fisheries losing some of their important social and economic functions as buffers and safety valves for a great number of people with limited possibilities in periods of stress.

The main argument here is that the resources undergo large natural variations where the idea of stable sustainable yields has little or no meaning. Furthermore; that effort is mainly population driven, based on very simple technology, so that the participation in the fisheries will vary over time, depending on the resource situation and the possibilities in other occupations. While Jul-Larsen *et al.*'s report may serve as a good reminder that western type fisheries management may not be equally well suited to all types of fisheries, it is hard to stretch their findings to marine fisheries, for example in Asia. Here the fishing technology is constantly being improved, also in the small-scale fisheries; the markets are extended, with

catches from the small-scale fisheries reaching the world markets, and the participation seems to be constantly increasing. So some type of management is evidently needed, as pointed out by Degnbol (1992) already in the early 1990s. The crucial question is then; what type of management?

Returning to the influential publications of FAO and the World Bank, the *explicit* message in “The sunken billions” (Arnason *et al.* 2009) is more moderate than before. Focusing on overcapacity in the fisheries and the use of subsidies, the authors claim that “the purpose of this study is not to be prescriptive with regard to marine fisheries tenure, but to raise awareness of this link between tenure and net benefits” (*ibid*:52). However, the *implicit* message is rather clear:

Economists traditionally measure the net economic benefits from a natural resource such as a fish stock by economic rents. Rents are not equal to profits but are usually similar, and may sometimes be identical, to profits. Thus, the inefficiency of fisheries may be measured as the difference between maximum rents obtainable from the fisheries and the actual rents currently obtained (*ibid*:30).

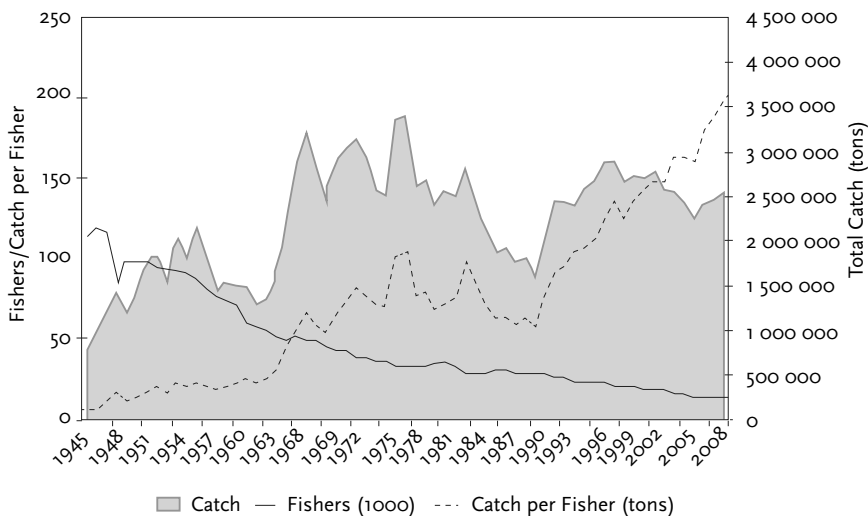
Andersen and Holliday (2007:9) are even more explicit: “From an economic point of view, the major source of the overfishing problem is the lack of property rights.” This is precisely where Bromley (2009) direct his major attack against most fisheries economists, accusing them of mixing property rights, resource rents and the need for management in a way that is utterly confusing: “Adopting this spurious advice [introducing Individual Fishing Quotas or IFQs] would compound the tragedy of the past malfeasance by the foolish embrace of confusion, contrivances, and deceptions” (*ibid*:19). While Bromley addresses a number of concerns regarding fisheries policy, the main message in this context is that also fisheries with open access leave room for normal profit, and it is not necessarily the role of governments to maximize the resource rent, which in most cases accrues to the few lucky ones remaining after the fisheries have been closed and the trading of rights has been implemented. Hence, fisheries administrators do not have to choose between efficiency and jobs, social equity and community impacts – what Bromley characterizes as “the false choice on offer” (*ibid*:10).

A simple metaphor can serve to illustrate the IFQ-debate: If you have a hammer, you tend to consider all tasks as hammering nails. As pointed out by Degnbol *et al.* (2006), painting the floor with a hammer may not be the best way. “Hammers are effective on nails but completely inappropriate to paint. Yet both are needed to complete a house” (*ibid*:535). Their point is that IFQs, the use of marine protected areas (MPAs) as well as community based management (CBM), may all be seen as *technical fixes*, in a situation that calls for more integrated approaches. The fisheries are at the same time both an *economic enterprise*, they form part of a *biological system* and they are part of a *social system*. With this in mind, we can approach our case stories, starting with Norway, in order to show how the fisheries perform in an industrialized country.

A classical case (Norway)

In 1946, just after ww II, Norway had 120,000 registered fishermen, while at present (2011) the number is approximately 12,000. In the meantime the total catch has increased threefold, indicating that the catch per fisher has increased from approximately 8 tons to more than 200 tons. At the same time, there has not been massive unemployment in coastal areas during this period.

Figure 2: Norwegian catch, fishers and catch per fisher (Ministry of Fisheries and Coastal Affairs)



As can be seen from figure 2, the number of fishers has decreased steadily since 1946. While natural variations and market conditions may have caused short-term fluctuations, the long-term trend has been steadily downward. This points to the enormous increase in technical efficiency over time, since the actual catch level is three times higher than in 1950, although the number of fishers have been reduced to a mere fraction of the original.

In Norway limiting access started already in the 1930s, with a strict limitation on the number of trawlers, later to be extended to purse seining fleet in 1973 and the remaining offshore fleet. In the coastal fisheries access was open until the cod crisis in 1989-90, when an Individual Vessel Quota (ivq) system was introduced. In this system the approximately 3500 fishermen who met the qualification criteria received the right to individual vessel quotas in a separate group (Group I), while the remaining fishers were left with a meagre group quota (Group II), based on an "Olympic fishery". Since then numerous modifications have been introduced to the system, mainly in order to make fishing rights more transferable, although within strictly limited markets according to geography and size. This has implied that Norway still has a diversified fleet, although there has been a constant drift of fishing rights from smaller to larger vessels and from the north to the south (Hersoug 2005).

While the number of fishers *needed* in Norway has always been a disputed point, the issue can be seen from at least two different angles. The first one is; how many fishers are needed to catch the available quotas? That of course depends on the fleet structure and the choice of technology. The second one is; how many fishers are needed to maintain the coastal settlement pattern, or more precisely, to secure a critical minimum of employment to maintain the small coastal communities? When the modernisation drive started after ww II, there were indisputably too many fishers around, with the sector acting as an *employer of last resort* all through the crisis years in the 1930s. The question was how the reduction should take place (push or pull) and how fast. In spite of generous subsidies throughout the period 1950-1990, which undoubtedly kept more manpower in the sector than was strictly needed, the reduction continued and most politicians and administrators seemed to see this as a natural law. Today there are, according to the former Minister of Fisheries, still too many fishers, although the fisher organisations have started questioning whether there is indeed a “minimum critical mass” in certain fisheries.

According to the settlement perspective, fisheries and hence fisheries policy have always been an important part of rural development. Fishing, processing and more recently aquaculture have been essential in securing basic employment in a large number of coastal communities. When the numbers are drastically reduced, and the recruitment made difficult through the actual closing of the fisheries (requiring a much higher initial investment in order to buy rights and quotas), this undermines many coastal communities.

What happened to the fishers that left the industry? Judging from the national figures for unemployment there were no significant increase in the number of unemployed in the most important fishing regions. The level of unemployment in the most fishery dependent counties in the north has always been higher than the national average, but on the other hand *lower* than the OECD average. However, unemployment figures depend not only on *push* factors (losing jobs in the fisheries) but on *pull* factors as well, which often means the availability of work in other industries, frequently in the south. In Norway we often experience the paradox that when unemployment figures in the south increase, outmigration of the fishing districts decreases, indicating that the development in the number of fishers (and fish workers) to a large degree depends on pull factors as well. This adjustment has not been a harmonious process. Many fishers have been strongly against any adjustments in sector policies, but seen in the perspective of unemployment and poverty we will have to admit that the process has been relatively smooth (Hersoug 2007).

If fishers were to keep track with the general increase in salaries in Norway, they would have to improve technical efficiency with 2.5-3 % per annum, which means that with reasonably stable TACS (since 1977) and stagnant ex vessel prices, the number of vessels and the number of fishers had to go down. Similar trends can be seen in most European countries, although with large variations, depending on the subsidy level and the availability of alternative employment opportunities. Or to phrase it more sharply; the large number of fishers in the late 1930s and 1940s was a sign of poverty, now largely overcome, *due to develop-*

ment of other sectors. This has also implied that fishing today is a well paid sector in Norway, with fishers in average earning more than the industrial average. The only sad part of this success story, is that it seems hard to imitate in developing countries. For this reason we turn to four other case studies, two from Asia and two from Africa.

A more typical case: Vietnam

In Vietnam, fish-related activities are important in many respects. The sector represents 4 % of national GDP and directly employs more than 650,000 fishers and aquaculture farmers, while the total employment figure, including support industries, is estimated to exceed 2 million. According to one of the latest sector studies (World Bank 2005), the relative contribution of capture fisheries represents about 40 % of the revenue generated and yield just under 60 % of the country's total fish production revenues (capture fisheries + aquaculture). Export earnings from fish, shrimp and other seafood products totaled us\$3.7 billion in 2007, of which 50 % was from shrimp aquaculture (Dzung 2008). Both capture fisheries and aquaculture sectors have expanded rapidly over the last decade, with marine capture fisheries increasing from 800,000 tons to 1.8 million tons, inland capture fisheries reaching 200,000 tons (although this figure is still probably a gross underestimate), and aquaculture 2.5 million tons in 2008. That means an increase of 22 % per year in the period 2000-2008 (FAO 2010).

Although fishing and aquaculture play an important role in the livelihoods of poor people, the Ministry of Fisheries (now the Ministry of Agriculture and Rural Development) has played a modest role in policy formulation. Only with the elaboration of the program "Sustainable Aquaculture for Poverty Alleviation (SAPA) in 2001, the sector policies were more integrated in the overall strategy for poverty alleviation. At present the main challenge is to reduce the number of in-shore fishers. According to the World Bank's sector study the situation is difficult:

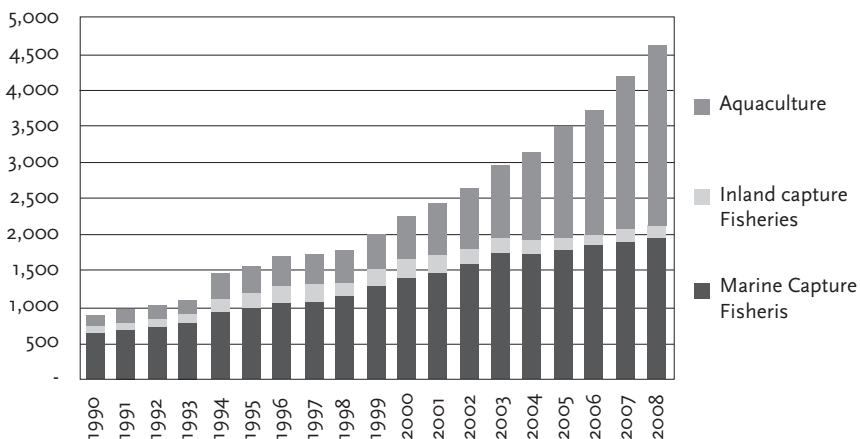
With increasing population pressure and the development of more effective (and/or destructive) fishing gears, inshore resources have been increasingly over-exploited. In this situation almost the only option for improved resource management is co-management, the sharing of responsibility for resources management between local communities and government agencies. The new Fisheries Law provides potential for this (World Bank 2005: iv).

In 2008, the Ministry of Agriculture and Rural Development claimed that the number of fishers in the inshore fisheries (the great majority) must be halved by 2010. *So far there is nothing to indicate that this goal can be met through ordinary management measures.* The number of fishers keeps increasing with at least 25,000 per annum, in spite of reduced CPUEs and reduced earnings, compared to previous years. Still it seems like earnings are better than in inland agriculture, which

is still the bottom line. The country has experienced strong economic growth over the last 20 years but this has not been sufficient to offer enough alternative employment, to reduce the pressure on the coastal resources. As can be seen from figure 3, the growth in aquaculture has been even more impressive, but still not sufficient to reduce the number of coastal fishers.

There are several good reasons why a rights based fisheries development is bound to fail in the small-scale fisheries in Vietnam. (In the offshore fleet the technical registration problems are less, although the problems connected with corruption regarding licenses are basically the same). The first applies to the share numbers of fishers involved, the number of fishing villages and landing beaches. The numbers are so large, that effective control will be more than difficult. The second applies to the type of inshore fishing, where catches normally consist of a large number of different species, often up to 100, which makes it impossible to introduce species specific quotas. The third applies to the alternatives. Limiting participation in the inshore fisheries will, by necessity, have to exclude a large number of fishers. For the time being very few of them have alternative employment possibilities. Reducing access will therefore most probably increase poverty, having in mind that each fisher is responsible for up to five family members, in addition to the employment in auxiliary activities.

Figure 3: Total fisheries production in Vietnam 1990-2008 (DERG and CIEM 2010).



Finally, the Vietnamese fisheries authorities do not have the capacity to control, nor to manage this large number of small-scale fishers, and so far the quality and the capacity of the provincial fishing administrations are not sufficient to take over a decentralized responsibility. This is not to say that limiting access is impossible, only that rights-based fishing, in the meaning of introducing licenses and quotas (effort quotas or ITQs), is way ahead of what is feasible for the time being. This is in line with the most recent strategic economic analysis of the fisheries sector in Vietnam, stating that:

In general, it is inevitable that fisheries will continue to play an important role in the coastal economy, despite declining productivity. The most realistically attainable solution will see households holding a portfolio of income-generating activities with a mix of (co-managed) marine capture fishing and a range of alternatives or supplementary activities (DERG and CIEM 2010:9).

As pointed out by Duy *et al.* (2010), even in open access fisheries many vessels may create net benefits to society, and hence, Vietnam should carefully consider benefits and costs before instigating a costly management system based on limitation of quotas or effort. According to Willmann (2004) Korea and Malaysia are the only two countries in the region which has experienced a reduction in the number of fishers over the last decade. It is worth noticing that both countries have been able to implement rapid industrial growth in terms of employment over a long period of time, thus creating alternatives to fishing. Rapid growth has also characterized Indonesia, but not to such a degree that employment in the fisheries has been reduced.

A planned increase: the case of Indonesia

After China, Indonesia is the country with the second largest number of people dependent on aquatic resources. There are 2.2 million full-time fishers and 2.3 million aquaculture farmers, which represents approximately 10 % of world FIGURES (FAO 2009). Unlike Vietnam, however, the Indonesian authorities have deliberately planned to *increase* this number further, in spite of the fact that many of the coastal resources are already over-utilized (see table 1). Both under the strong unitary regime of president Suharto and under the new democratic regime subsistence fishers and traditional fishing vessels (i.e. fishing vessels <5 gross tonnage (GT) or boats without engines or with engine SIZE <15 HP) do not need to have a fishing permit. “As a result, small-scale fishing, which accounts for a large portion of all fishing activities in Indonesia, remains largely unreported” (Varkey *et al.* 2010).

However, Indonesian fishers are not the only ones to blame for this situation. Let us just start with the rather unpleasant fact that thousands of Thai vessels fish illegally or semi-illegally in Indonesian waters. This started in the 1980s, when the Arafura Sea and adjacent waters was the only part of Indonesia not subject to the trawling ban introduced by the Suharto government in 1980 (Heazle and Butcher 2007). This management has rightly been hailed as one of the most important measures to support small-scale fishing (Bailey 1997), even though some of the effects have later been diluted by local authorities defining trawl as “fish nets”, thus guaranteeing the reintroduction of trawlers. At the time many Thai companies were set up as joint ventures with Indonesian companies, but not necessarily of the ordinary business type. One key player was *Inkopal*, a collection of businesses run by or on behalf of the Indonesian navy. It goes without further saying that the control of such vessels had to be more lenient than the ordinary coast guard

control that we are used to in many other countries. This must be seen in the context that the Indonesian army, including the Navy, to a large degree has to provide for its own income. The point here is not to claim that all Indonesian fisheries control authorities are corrupt, only to point out that the present control system is inadequate to guard the enormous sea areas within the Indonesian EEZ, partly by the lack of patrol capacity and partly by the inefficiency of enforcing the existing fisheries regulations.

Table 1: Capture fisheries, development target until 2009 (Ministry of Fisheries 2008)

Indicator	2006	2007	2008	2009	Average change, %
Production (ton)	4 163 070	5 227 220	5 349 360	5 456 700	9.97 %
Marine	3 830 680	4 894 070	5 014 440	5 120 000	10.77 %
Inland water	332 390	333 150	334 920	336 700	0.43 %
Cumulative numbers of fishermen (person)	3 315 800	3 722 630	3 769 800	3 810 780	4.87 %
Number of fishing fleet/boat (unit)	513 730	535 430	536 400	537 170	1.52 %
Non powered boat	260 790	249 720	247 090	245 390	-2.00 %
Outboard motor	141 570	167 360	169 460	170 490	6.69 %
Inboard motor < 30 CT	106 620	112 630	113 880	115 240	2.65 %
Inboard motor > 30 CT	4 750	5 720	5 970	6 050	8.71 %

Today, the current efforts of the government to decentralize management through fisheries co-management reforms may be seen as a genuine attempt to abolish the previous top-down system (Satria and Matsuda 2004a, 2004b). The provincial authorities are, however, often in need of money, and hence struggling with the temptation of entering into arrangements with foreign companies. While there is nothing (legally) wrong with entering into access agreements with foreign fleets, in the case of Indonesia the more than two million national fishers could probably make better use of the resources, and in particular create more value-added industry on land. In addition, the fragmented nature of this newly decentralized management seriously impedes any attempt at controlling the intensity of fishing activity, and, in particular, that of foreign fleets fishing in Indonesian national waters. The overall capacity of the country to monitor and control its national waters is, in any case, relatively weak. While 60 patrol vessels are engaged in monitoring, control, and surveillance – a larger number than in many other developing countries – the size of the zone to be controlled (more than 5 million km²) makes their task almost impossible. Although the Ministry of Marine Affairs and Fisheries claimed in 2004 that the number of foreign fisheries vessels operating illegally in Indonesian waters had dropped from 7,000 to just above 1,000 (Heazle and Butcher 2007), the real situation is that the present control system is hopelessly inadequate to guard the enormous sea areas within the Indonesian Exclusive Economic Zone.

The point is the same as in the Vietnamese case: Maybe rights-based management is not the first priority? There is no doubt that many of the fish stocks in Indonesian waters are either fully utilized or overfished. It is further accepted that excess capacity is one of the leading causes of this overfishing (Pomeroy *et*

al. 2007). What is at stake is how to regulate in order to obtain a more sustainable fishery, while at the same time not excluding the thousands of poor people taking up fishing as an employer of last resort. The days are long gone when the ministry in Jakarta could calculate the TACS available for the different regions and then allocate licenses according to where extra capacity could be added (Pet-Soede *et al.* 1999). Now the granting of licenses within the 12 nautical mile zone is delegated to the provinces, while the responsibility for nearshore waters (out to 4 nautical miles) can be delegated further to the district level. This means that fisheries regulations may vary substantially from one area to another, which is precisely the main idea behind the decentralization reform. However, so far the decentralization has meant that provincial and local authorities use the fisheries (and other natural resource use) to generate money through taxation, while management is still lagging behind. According to Siry (2011) regional autonomy has in many instances led to “regional auto-money”.

Co-management has been hailed as an important element in this situation, trying to get the various stakeholders involved in the management of the marine resources. According to Pomeroy *et al.* (1997) this would also reduce the chances of fish wars in Southeast Asia. But with such huge challenges ahead (building up competence on province and district level, introducing co-management and implement a more effective monitoring, control and surveillance) the capacity to deal with rights-based management schemes in the more narrow sense, seems completely farfetched. In a case study of the Raja Ampat Regency in Eastern Indonesia, Varkey *et al.* (2010) estimated that the illegal and unreported catch exceeded the reported catch by more than 40,000 tons (or a factor of 1.5) for the year 2006, which in monetary terms means 40 million USD. In this case we are talking only of Indonesian fishers, so if IUU fishing from other nations are included the picture becomes even bleaker. It is an understatement that a number of other challenges have to be solved before new rights-based management schemes should be introduced.

A gradual approach (Mozambique)

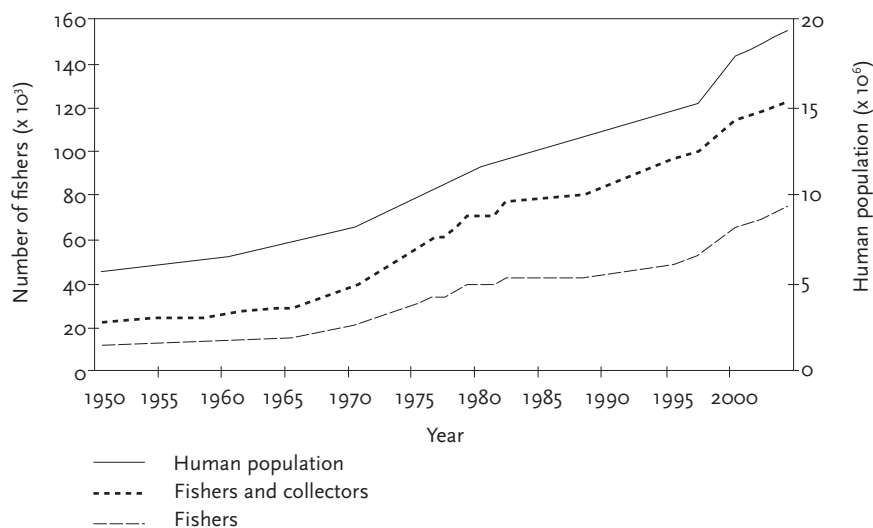
Mozambique is considered to be one of the poorest countries in the world – ranked 175 out of 179 on the UNDP’s HDI list (2008). The fisheries sector contributes at least 3 % to GDP and directly employs more than 100,000 people. While the industrial sector provides shrimp for export, the small-scale, artisanal sector delivers fish mainly for local and regional markets. At present the industrial capture fisheries are struggling to remain economically viable, owing to the dramatic increases in fuel prices and the declining prices for shrimp following the stiff competition imposed by Asian aquaculture producers on the EU markets. In contrast, the small-scale capture fisheries have experienced rapid growth since independence in 1976. Due to 16 years of civil war (1976-92), a steady stream of people have migrated to the coast, taking up fishing and collection of shells, crabs and snails as one of the few economic options left to sustain their livelihoods. This expansion has put strong pressure on the coastal resources, especially in areas with a large concen-

tration of people, as in Maputo Bay, close to the capital. Indicators of productivity have gone down for several years, although the catches are recognised to be much higher than indicated in the official statistics (Jacquet and Zeller 2007).

In such a situation we should expect a strong focus on access limitations, trying to reduce the number of fishers. However, Mozambique has chosen a different strategy: The bottom line, (which is probably valid also in a number of other developing countries) is that:

At the extreme levels of the struggle for survival, any management intervention has uncertain results and most often is ineffective – *it is not possible to restrict the actions of those who are on the margins of survival* (MOF 2007:24).

Figure 4: Number of fishers, fishers and collectors, and human population 1950-2004 (Jacquet and Zeller 2007).



Consequently, Mozambique has developed a gradual approach, based on artisanal fisheries classified according to four different categories. They all face the challenge of connecting fish (catches) to effective markets, which means that infrastructure, and in particular roads, play an important part in the development plan. Technological improvement is seen as a development tool only in the more advanced artisanal fisheries, with a gradual introduction in order not to destroy the social fabric of the coastal fisheries.

Market failure is seen as the most pressing issue in the small-scale fisheries and accessroads are seen as the key to improvement, in addition to improved education, health services and provision of clean water. Licensing is clearly one, out of many measures, to be implemented more effectively than today, but excluding extremely poor people is not seen as a viable option. Among other prioritized management measures is the exclusive artisanal fishing zone of three nautical

miles, which should be strengthened through increased monitoring, control and surveillance. Finally, co-management and decentralization are seen as essential elements, since the original centralized, top-down management regime possesses neither the capacity, nor the knowledge to implement the strategic plan for the artisanal fisheries sub-sector.

A rights-based approach with mixed results: the case of South Africa

While South Africa (together with Namibia) is considered the largest fishing nation in Africa, it ranks only at 30th place on a world scale with a production of 523,000 tons in 2009 (FAO 2010). The contribution of the entire industry (fishing, processing and aquaculture) is considered to be less than 0.1 % of the GDP, although in the province of the Western Cape, home to more than 90 % of the fishing industry, the numbers are higher. More than 27,000 persons are engaged in the formal sector of the industry, mainly in the Western Cape, while all coastal provinces have large groups of people utilizing marine resources for sheer subsistence. In addition South Africa has at least 700,000 recreational fishers, creating important economic activities in the tourist sector. The industry consists of more than 20 different fisheries, of which the hake fishery is by far the most important in economic terms. In addition there are large pelagic fisheries and a heavily disputed shellfish sector, fishing for West Coast rock lobster and abalone. The reason why South Africa is included here is that the country recently introduced a new fisheries policy, largely based on a rights-based management regime.

When South Africa finally got rid of the apartheid regime in 1994 the new government faced a depressing legacy. Of the total TAC-regulated species, 0.75 % of the quotas belonged to blacks, of the 2700 registered fishing vessels 7 % belonged to blacks, while of the 4000 fishing licenses 6 % were issued to blacks. Ten large companies, predominantly owned by whites, controlled 80 % of the industry (Hersoug and Holm 2000). There was an urgent need for reform and in less than four years a new policy was launched, based on the principles of more equal access for the historically disadvantaged groups and individuals. The Marine Living Resources Act (MLRA), introduced in 1998; was based on an I(T)Q concept, with individual quotas to all commercial operators in the TAC-regulated fisheries. Quotas cannot be sold without the consent of the fisheries authorities, i.e. Marine and Coastal Management (MCM), now under the Department of Agriculture, Forestry and Fisheries (DAFF). However, a flourishing market for leasing rights and quotas has developed, not least during the first years with short- and medium-term allocations, when “paper quotas” were common in all important fisheries. Small operators without cash, vessels and processing facilities were largely forced to lease their quotas to larger, established operators. This is not the place to examine the detailed results of the large transformation process which has taken place over the last twelve years, but suffice to say that assessments differ considerably (Isaacs *et al.* 2005; Mather 2007; Ponte and van Sittert 2007). However, even if the number of previously disadvantaged individuals (PDIs) increased dramatically, and the former white-owned industrial processing companies now are partly owned by

black investment companies, many of the bona fide small-scale fishers failed to obtain rights. They might lack the formal qualifications, the money to undertake the registration fee, or they might have been forced out of the many community organizations, established in order to get a piece of the pie (Isaacs 2004). Whatever the reasons, the political discontent with the process of allocating long-term fishing rights (8 -15 years) in 2006 continued, and with the assistance of an NGO, the small-scale fishers without fishing rights launched a suit against the Minister of the Department of Environmental Affairs and Tourism (DEAT), at that time the ministry responsible for the fisheries management. Just before the case was to be heard before the Equality Court, the Minister agreed to set up a national task team, representing the fishing communities, NGOs, academics and government officials in order to develop a small-scale policy. In the meantime the Minister granted to set aside a certain quantity as a relief mechanism to help more than 1000 traditional artisanal fishers (see Isaacs 2011 this issue). In time of writing this policy draft has now been underway for four years, clearly reflecting the problems of finding a workable solution for the highly diversified group of small-scale fishers.

South Africa contains fisheries that belong to both the first and the third world (Hersoug and Isaacs 2002). The problem arises when the third world fishers are treated according to standards developed for first world fishing companies. It is fair to say, as MCM repeatedly claimed, that “fishing is no charity”, but in the process of leveling the playing field, more could have been done in order to include the bona fide fishers, alternatively to establish a separate system for the small-scale fishers. This was eventually done in the case of West Coast rock lobster and abalone, with the introduction of a separate group of “small-scale commercial”, but here the group quota was extremely limited, not offering much prospect of a living for the numerous members of the community organizations obtaining these rights (Hersoug 2002). The establishment of a separate group of subsistence fishers has also proved problematic, as these fishers are locked to very limited quotas in a few low-price species, thus missing out on any development possibilities.

In the next round this has led to a permanent pressure from the small-scale fishers in terms of creating a policy specifically designed for this group. Their nearly permanent protest has met with some success in the legal sphere, with the courts agreeing with the small-scale fishers that the present set-up does not cater for the needs of the small-scale fishers.

This is not to say that rights-based fisheries in South Africa have been an outright failure. Many of the stocks are in a healthy situation (although abalone and WCRL in a very bad shape), the industry is earning money, both on export and on the national market, and more PDIS are involved as quota-holders or shareholders in the fishing companies. Nevertheless, a large segment of the people living along the sea, the ones that were promised that the marine resources “should be managed and developed for the benefit of the country as a whole, *especially those communities whose livelihoods depended on these resources*” (MRLA 1998), have been excluded from utilizing these resources. Unfortunately, the next allocation will take place in 2020, which means that the distribution of long-term fishing rights

in 2006, “was probably the last real possibility for the South African government to enact a meaningful redistribution of quotas” (Ponte and van Sittert 2007:439).

Management options

Can we, based on these five case studies, draw any generic conclusions regarding the future of the small-scale fisheries? First, the obvious conclusion is that the fisheries sector cannot solve the poverty problems alone, not for the people directly involved in fishing and processing, and to an even lesser degree for the entire coastal population. In many developing countries rural people are drawn to the coastal areas in large numbers, and they cannot possibly all be employed in the fisheries, including aquaculture and auxiliary industries. Economic development in terms of expanding industry and service sectors will be necessary in order to absorb the labour supply in the coastal areas. Economic diversification is the clue to the poverty problems, whether this takes place as a shift (e.g. from fishing to industry) or as part of expanding the range of livelihood opportunities (e.g. by creating part time jobs in the tourist industry). However, alternative employment is a long-term strategy. Even in Vietnam, with a long-term track record of strong economic growth of 7-8 % per annum, this has not been sufficient to prevent a steady influx of new entrants into the already over-subscribed coastal fisheries. The fact that many fishers still earn considerably more than what can be achieved in agriculture does not contribute to an easy exit of the coastal fisheries. The same applies to Indonesia, where in spite of strong economic growth; the number of fishers keeps on expanding – at least up to 2005.

Second, rights-based fisheries management, eagerly advocated by many leading development agencies, may not be the first priority when reducing vulnerability is the primary political goal. A single-minded focus on creating exclusive harvesting rights could imply the exclusion of many of the poorest, the ones that are prioritized in many fisheries development schemes. This applies especially to migrating fishers, whether they migrate regionally or across national borders, as is often the case in West Africa (Jul-Larsen 1992).

Having a long-term perspective in mind, one of the best alternatives in order to alleviate poverty and reduce vulnerability is probably to invest in education in the fishing villages. While the present generation often will find it difficult to change occupation, due to the lack of adequate qualifications or geographical immobility, the new generation will have considerably better chances of engaging in alternative livelihoods if they are better educated. Hence, investment in education, especially for women, may, as demonstrated by Sen (1999) in the case of Kerala, pay off in the longer run.

Turning now to the fisheries and the management challenge as such, there seems to be five broad avenues for improvement. The first applies to *aquaculture*. Countries like Vietnam and Indonesia have deliberately used aquaculture development to provide an alternative to fishing and to diversify their economies. Both countries have been hugely successful in terms of creating employment and export income, but aquaculture is not an alternative without problems. Not only has the

rapid expansion of aquaculture farming implied large environmental problems, but in many cases also increased the vulnerability of livelihoods for the coastal population. Aquaculture, especially in its intensive and semi-intensive forms, is a high-risk activity, where disease problems overnight can reduce the potential gain to a dramatic loss, leading farmers further into debt problems. However, with better planning, zoning and management aquaculture holds huge potentials for the fishing dependent regions, both marine and inland.

The second route involves the use of established management systems, such as the *van chai* in Vietnam and the *sari laut* in Indonesia (Ruddle 1999; Satria and Matsuda 2004b). Both systems have a much broader approach than the management of fish as such, but the important aspect in this connection is that they still have validity and legitimacy. I am not going to advocate that a return to old management systems will solve the present crisis in many inshore fisheries, just to claim that an incorporation of such systems (where possible) could ease some of the problems involved, not least related to the regulation of access and the distribution of catches and benefits.

The third approach applies to increasing the value added component of the fish catches. Basically there are three ways of doing this:

- Reducing post harvest losses, increasing quality (e.g. by use of ice)
- Reducing discards, especially in the shrimp fisheries
- Creating high value, special products, and finding new markets.

Even in extremely poor countries like Mozambique, it is easy to see how new technologies, like cell phones, combined with improved infrastructure, such as better access roads, have implied better prices and increased incomes for small-scale fishers. Local fishers do not have to sell to the local buyer(s), but can through better information access the best paying markets, even if transport infrastructure still is a limiting factor. Whatever way of increasing the value of the present catches (including discards), fishers, fish workers and people in the auxiliary industries stand to benefit, although local power relations will largely determine who gets what.

The fourth approach involves co-management. Co-management has been promoted for more than 20 years as a solution to the classical problems of modern top-down management. As portrayed in the world-wide review by Wilson *et al.* (2003) experiences are mixed, and in many cases co-management performs no better than the traditional top-down management it is supposed to replace. Effective co-management seems to presuppose that fishers are organized, that they are literate, that the state apparatus is able and willing to delegate certain management functions and finally that the co-management arrangement has some form of legal backing (Hersoug 2005:29). Thus, instead of regarding co-management as a recipe, it could be seen as an institutional and organizational *learning project*, where the process is far more important than the “final result”, more in line with “building the boat while sailing”. If this is the case, it is easy to see that co-management does not offer any guarantee for priority given to the poor. As demonstrated in the case of South Africa, any redistribution process may be hijacked by the more powerful interests in the fishing community. On the other hand, any co-management effort implies debate over access and allocation issues.

Poor people may be organized in the process, and even if the co-management set-up is not able to produce more fish in the short run, it may affect the distribution of rights and quotas.

The fifth approach applies to planned redistribution. For years agricultural economists were arguing in favor of land reforms, giving small-scale farmers an impetus to become effective producers, either individually or collectively organized. Some of the most efficient modernizers in Asia have based their industrialization on successful land reforms. Similar reforms have seldom been explicitly implemented in the fisheries sector. Resource allocation has easily ended up with the larger vessel owners taking the lion's share, leaving very limited resources for the majority of small-scale fishers, as in the case of South Africa. However, another allocation of resources could in many instances produce more value added, and certainly more employment. Hence, there is a need for discussing "fisheries reform", along the same lines as land reform.

So what about the traditional management techniques? Are there instruments that can be used in the small-scale fisheries in countries with large number of fishers? Having discarded favorite solutions, such as ITQS (IEQS, IVQS) due to technical difficulties, there are still rights-based approaches that can be used to reduce fishing pressure. While licensing proved to be a failure in many developed countries, entry licensing, combined with annual license fees may be an important start in many developing countries. But again, it is important to remind policy makers to start with the larger vessels, the ones fishing the most and having the best opportunities of paying license fees. With increasing fuel prices, the pressure on near-shore resources will increase, also from the offshore fleet, thus strengthening the need for stricter licensing of capacity. Gradually such licensing schemes can be extended to cover a larger part of the fleet, with graduated license fees, depending on the profitability and income of the various fleet groups. Establishing separate zones for small-scale fishers may also serve as an allocation mechanism, *if the zone is properly monitored and controlled*.

Lessons and conclusions

It is the task of missionaries to persuade the doubtful, to provide the gospel, and to promise salvation. It is (or at least, it should be) the task of academics to be skeptical about single-minded solutions, quick fixes and "one size fits all"-solutions. Unfortunately we have over the last decade also seen a number of colleagues turned missionaries, whether they are selling ITQS, MPAS or co-management as the ultimate solution to most fisheries management problems. Hence, I have seen it as my task to be skeptical about the over-selling of rights-based fisheries management as *the* solution to most contemporary fisheries management problems in developing countries. This does not mean that I endorse open access and see no problems with continued open access in coastal fisheries. On the contrary, I believe we have a real resource crisis in many fisheries and catch levels that are not sustainable, whether measured in biological or economic terms.

On the other hand there are serious problems connected to the closing of common property resources, especially when fisheries policy is connected to poverty reduction and the reduction of vulnerability. The obvious problem is that closing may restrict access for precisely the ones most dependent on the resource, the poorest. Closing a commons is no Sunday school, whether on land or at sea. Marx described the closing of the agricultural commons in England, where farmers were driven off the land to become cheap labour in the cities. Similar accounts can also be found in the fisheries, although the text book prescriptions claim that the losers may be compensated, by being bought out, as in the case of ITQ-systems where remaining quota owners buy out the ones that are leaving the fisheries. However, in less well regulated fisheries, with a large number of poor fishers, and less well functioning administrations, local power relations will largely determine who gets what. At best, some compensation will only be achieved by *boat owners*, while crew members and people working in related industries will receive nothing.

Again it could be argued that the main goal for the state is to optimize the use of national resources. Hence, limiting access could in principle produce resource rent, which the state in turn could redistribute to the poor. However, most developing states are not in a position to collect and redistribute wealth, not even in terms of development aid. Payment for access rights can serve as a valid demonstration, as the annual payments made by e.g. the EU seldom find their way back to the small-scale fishers, who normally suffers the most from such arrangements (Brown 2005).

We all agree that in the long run, poverty and vulnerability in the fisheries cannot be solved by isolated sector policies. Alternative employment is a large part of the solution, but unlike the case of Norway, the number of fishers keeps increasing in many developing countries, even in the case where they have strong economic growth. Fishing continues to be an employer of last resort. The great challenge is then how we are going to tackle this paradox. The invisible hand is evidently not working, or perhaps it is working too slowly.

I have brought some examples and ideas from important fishing nations in the south; some successful, others less so. Resource management through TACS, ITQS or IVQS is not on the agenda, due to the sheer technical difficulties. Even more community-based, rights-oriented schemes may end up excluding the most vulnerable people, e.g. immigrant fishers. Consequently, we will have to look for a suite of management and development measures, both inside and outside the traditional sector policies per se. Realizing that the fisheries can only to a very limited degree solve the poverty problems in poor nations, we should perhaps devote more efforts to *education, health and transport* (infrastructure). If we still prefer to concentrate on the fisheries sector policy, more can definitely be done in terms of development efforts tailored to the needs of the poor, especially in aquaculture policies, but also implicit allocation through exclusive zones for small-scale fishers may to some extent alleviate poverty and at least reduce vulnerability. Value added activities will also improve the present situation, but here the effects relative to the poor will depend on adequate allocation mechanisms and structures. Co-management in itself is not going to solve the problem of overfishing, but when

solutions have to be found at community level, this could also influence the allocation of access rights and the distribution of benefits. It will be more difficult to claim that “the winner takes it all!”

There is a paradox in modern fisheries management science; enormous progress has been made over the last twenty years in terms of technical sophistication, while in practical fisheries management very little has been taken into consideration. Maybe it is time that we start looking at *relevance* again. Then the evident starting point will be to see how we can meet the challenge of fisheries management in the face of poverty in the large fishing nations. *How do we secure rights-based fisheries to the right people?*

Notes

- 1 The poverty element has been further elaborated in cooperation with Béné and Allison (see Béné *et al.* 2010).

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