

Chapter 13.

Fisheries policy and rural development

According to OECD's classification, rural conditions are found in communities or locations with population density lower than 150 habitants per square kilometre, and which are located more than an hour distance to the closest urban area. In Mexico, 34% of population lives in communities of less than 100 habitants/km², and of this percentage, 91% live more than an hour distance from urban areas of at least 100 000 habitants. Ten percent of total population in Mexico lives more than four hours from the closest urban area (World Bank, 2004). In 2004, 61% of the Mexican population in extreme poverty lived in rural communities. These and many other statistics of population and social development show that rural development has to be a central public policy for all government programmes, both at federal and state levels.

For the current federal government, rural development means improving access to both services and wealth generation opportunities as an efficient way to tackle poverty. Rural necessities have a range of aspects and degrees of provision, and may involve provision of access to markets, services, financing, capacity development, as well as access to technology through education and training.

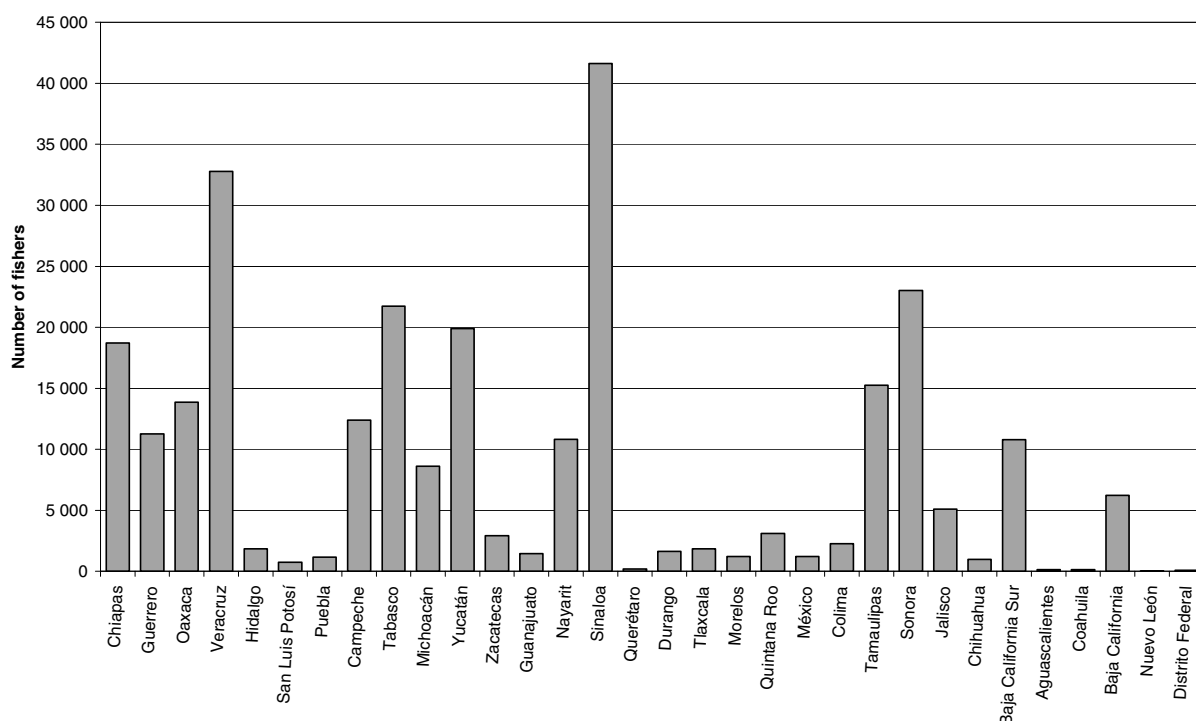
On December 2001 the Law for Sustainable Rural Development (*Ley de Desarrollo Rural Sustentable*, LDRS) was published in the Official Gazette, and pursues rural development on two criteria: a) inter-institutional coordination and b) federalization and decentralisation. To fulfil the first criteria, an Inter-Secretariat Commission for Sustainable Rural Development was established, incorporating the Ministers of nine Federal Secretariats, included SAGARPA.

The linkages between fisheries policies and rural development strategies in Mexico are complex with historical, political and social influences that are still influencing policy development today. The linkages are manifest in several ways. First, there is a high incidence of rural poverty in the coastal states of Mexico. Based on the CONAPO marginality index, coastal states account for 7 of the 10 most marginal states in Mexico, with the coastal states of Chiapas, Guerrero, Oaxaca and Veracruz being the most marginal.¹ Second, fisheries and aquaculture play a prominent role in the economies of these states. While the contribution of fisheries to the GDP of these states is generally relatively low, it is a regionally important sector in terms of employment and food production. Figure 13.1 shows the number of fishers in each state, ordered according to the degree of marginality (from poor to rich). It can be seen that there is a concentration of fishers in the poorer states on the left half of the figure.² Third, fisheries management policies have played a historical role in wealth redistribution through the system of reserved species that existed up until the early 1990s. This system provided fishing co-operatives with exclusive rights of access to certain species (most notably, shrimp). While this reservation was lifted in 1992, the effects of the former policy have lingered through

the persistence of excess capacity and resource use conflicts in the shrimp and other fisheries. Fourth, there is a large number of *ejidos* in the coastal strip of Mexico and these influence the rate of resource use and extent of resource conflict in coastal fisheries. The area covered by individual *ejidos* ranges from large parcels of land and coast to relatively small and fragmented areas. In Baja California North, for example, the southern half of the state and much of the southern coast is covered by a relatively small number of *ejidos*. In contrast, there are 207 relatively small *ejidos* scattered along the coast of Sinaloa. The historical links to local fish resources that are often claimed by coastal *ejido* communities tends to complicate fisheries management. Finally, the fishing sector in Mexico has often been regarded as a ‘last-resort’ activity, used by politicians as a means of reducing unemployment, reducing pressure on the agricultural sector, and keeping social unrest under control.

These linkages create an expectation that fisheries policies have a role to play in alleviating poverty in rural areas. This is particularly evident in the littoral regions of coastal states, but it is also increasingly the case in inland areas where aquaculture is regarded as a potentially important alternative activity for the rural poor. This chapter reviews the effects of fisheries and aquaculture policy on rural development. Two key areas are addressed: the role of fisheries management policies and the distributional impact of fisheries support programmes.

Figure 13.1. Number of fishers by state, ordered by degree of marginality, 2003



Source: CONAPESCA (2006). States ordered from poor to rich by the CONAPO marginality index.

Rural poverty has fallen by a half between 1998 and 2004, but this apparent success must be qualified in several respects. First, most of this fall represents a recovery from the dramatic increase in poverty following the 1995 currency crisis; the 1992-2002 decade

has been called a “lost decade” in terms of rural poverty-reduction. Second, rural areas still account for a disproportional share of the extreme poor and, more generally, large gaps remain between rural and urban localities, north and south, and indigenous and non-indigenous communities within rural areas. Third, the reduction in poverty may reflect progress of households close to the poverty line, rather than at the lower end of the income distribution. Fourth, most of those who have escaped rural poverty in this period have done so through rural non-agricultural activities and migration, rather than through participation in the more traditional agriculture activity.

At the outset, it is important to recognise that fisheries policy is not the appropriate instrument to address widespread poverty concerns. The solutions lie in a much broader array of policy mechanisms that are much better suited to this purpose and go well beyond the realm of fishery policy. Overall economic development, the social welfare net and the creation of employment alternatives in coastal regions will all have a much more prominent role in alleviating rural poverty. Considering a sector specific response would only be appropriate if society-wide income support systems are inadequate and the prevalence of poverty is directly linked to fishing. Nevertheless, there remains the expectation that fisheries policies have a role to play in the policy mix, particularly in regions that are relatively well-endowed with fish resources and suitable aquaculture sites.

Impact of fisheries management policies

In Mexico today, the main artisanal marine fisheries are giant squid, shark and shrimp, with the latter two being the only ones with management plans. Fishing is the main source of income for many of the artisanal fishers, but only the low value species are used for their own consumption; the resources they target are generally of high commercial value and are sold. The artisanal fleet consists mostly of fibreglass boats (up to 36 feet long) with an outboard engine and are popularly known as *pangas*. Around 54% of the fleet is located on Pacific coast (half of them in the Gulf of California) and 46% in Gulf of Mexico (particularly in Veracruz, Tabasco, Tamaulipas, Campeche and Yucatan).

The linkages between fisheries policies and rural development have deep historical roots. The agrarian reforms of the early 20th century in Mexico saw the creation of cooperatives and *ejidos* (also called the social sector). Prior to 1992, these cooperatives/*ejidos* had exclusive rights to exploit and market the most commercially valuable fisheries, including shrimp, abalone, lobster, oysters, squid, mullet, octopus and totoaba. The system of cooperatives was intended to provide development opportunities for these fisheries and to effect a redistribution of wealth to the poorer fishers. The cooperatives sought to take advantage of their exclusive rights by expanding capacity, production and exports, and this was often underpinned by subsidies from successive administrations in repeated efforts to maintain employment in the sector. However, by the early 1990s, many parts of the sector were in economic crisis due to uncontrolled expansion, overcapacity and heavy competition for stocks. Many cooperatives were on the verge of bankruptcy, the state-controlled fisheries bank, *BanPesca*, which had been providing soft loans, was closed down, and catches were declining.

During the general structural reforms of 1992, the cooperatives' exclusive right of access were removed and the private sector invested heavily in the sector, purchasing and using the boats and equipment of debt-ridden cooperatives. By 1993-94, around 90% of

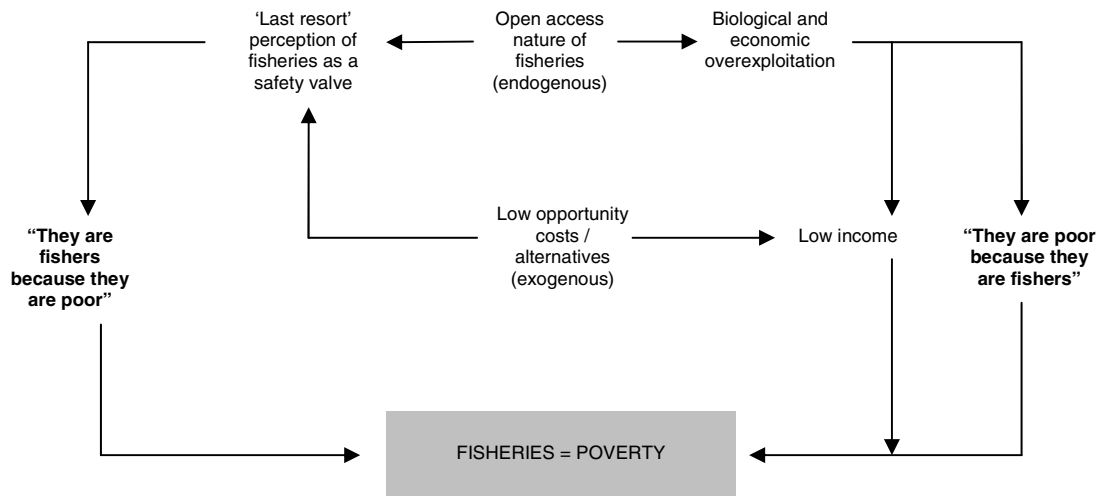
the offshore fleet in the North Pacific was already privatised, and the trend continued throughout the country. However, the change in access and ownership arrangements was not accompanied by measures to effectively limit further expansion in the fleet, particularly in the inshore fleet. The result was the continued expansion of the small scale fleet so that the numbers of small-scale vessels, which had already more than doubled between 1980 and 1990, increased by a further 40% between 1990 to 2000.³ There was both horizontal and vertical expansion in this sector. Horizontal expansion is when capacity is being increased by more fishers using the same technology, while vertical expansion is based on new and improved technology.

Mexico's artisanal fleet is largely uncontrolled, and may be even uncontrollable, and most of the artisanal fisheries remain essentially open access fishery. CONAPESCA is focussing enforcement efforts on a few key fisheries such as shrimp, lobster, giant squid. CONAPESCA's ability to enforce regulations in the artisanal sector is severely constrained by the sheer scale of the problem and a lack of sufficient resources. It is also influenced by a concern that the enforcement of regulations would put up to 60 000 people out of the industry, with few alternative employment opportunities (personal communication, CONAPESCA, February 2006). Illegal fishing, combined with poor enforcement and high export prices, has exacerbated the level of over-exploitation in the small-scale fisheries. The role of the sector as an employer of last resort, appears to be embedded in the government approach to the sector. The growth in the artisanal fleet, coupled with poorly defined access rights, has also given rise to a range of resource use conflicts, particularly in the shrimp sector. Cooperatives remained in the inshore shrimp fishery catching mainly smaller shrimp for the domestic market, while the private-owned vessels caught shrimp both offshore and inshore for export. This has resulted in conflicts over resource use between these two groups of fishers, exacerbated by the fact that the commercial offshore shrimp fleet is more heavily regulated than the artisanal fleet (although there still remain significant overcapacity problems in the offshore shrimp fleet). The inshore fishers also had conflicts with shrimp farms, which needed wild larvae from the estuaries, where many small scale fisheries take place.

The Mexican situation can be characterised using two classic interpretations of the relationship between poverty and fisheries (Hersoug *et al.*, 2004). The first argues that "they are poor because they are fishers." Here, the open access nature of local fisheries leads to more and more people entering the fisheries, resulting in over-fished resources, an elimination of resource rent, and ultimately in the impoverishment of the fishers and their communities. In addition, the low alternative cost of labour in fisheries resulting from the lack of alternative opportunities means that fishers become "trapped" in the sector. These two causes, one endogenous to the fishery (open access) and the other exogenous (lack of alternatives), combine to create a situation of continued poverty.

The second interpretation argues that "they are fishers because they are poor". In this case, fishing is regarded as an employer of last resort, where those falling out of the agricultural system and from urban migration can manage to eke out a living. Common property resources then become extremely valuable to poor people and attempts to close the participation in the fisheries may result in increased poverty. The two interpretations are presented in Figure 13.2.

Figure 13.2. The two pillars of poverty on fisheries



Source: Hersoug *et al.* (2004).

Both these scenarios help explain the current situation in the Mexico's artisanal fishing sector. The scenarios also point to a difficult policy dilemma for the government in relation to fisheries management. If fishing is, in fact, essential as an employer of last resort, then the classic approach to fisheries sector development of closing the commons and limiting access will result in excessive hardship to those least able to respond. On the other hand, unlimited access will inevitably cause severe damage to the stocks and will ultimately be self-defeating. The solution lies in the institutional framework governing the artisanal sector. It is necessary to find a more appropriate distribution of rights and benefits that can strengthen the artisanal fishers' access to common pool resources, while at the same time limiting the collective pressure on the stocks. The current situation of an open access artisanal fishery is both poor fishery policy as well as poor social policy.

While the overall solution to rural poverty in coastal regions obviously lies in a broader approach involving economic growth, economic diversification, social welfare nets, education, access to rural finance, etc, fisheries management policy can usefully address some aspects of the problem. Bringing the artisanal fleet under control is an obvious first step. As was noted in Chapter 11, an accurate assessment of the size of the fleet is required together with the use of improved monitoring techniques (such as new generation VMS units for small scale vessels). The development of community-based management frameworks can provide a basis for improving the management in many artisanal fisheries. Under certain conditions, empowering artisanal fishers can significantly change the incentives that they face with respect to exploitation and conservation of local resources. At a broad level, the basic ingredients of such frameworks entail devolving responsibility to an appropriate level of organisation to ensure it is representative, inclusive and achieves legitimacy among fishers. This requires authorities to help local fishers define a management level that is representative, responsive, and minimises the risk of free-riders and illegal fishers. Transparency, accountability, and auditing by central government will help reduce the scope for local corruption, as will a wide involvement of stakeholders. The cooperatives may provide a useful organising mechanism within such a framework.

Such arrangements would be most easily implemented in sedentary fisheries such as abalone, oysters, lobster, sea urchin, etc., as these species are well-suited to area-based management and often have well-defined communities exploiting the resources. Several community based arrangements are already used in various parts of Mexico (see Chapter 11). The use of such arrangements for shrimp and fish species that are locally migratory or shared between several communities would require careful attention to be paid to the relevant scale of “community” for management. These two aspects of scale (species and community) will define the structure for a particular community-based management arrangement.

Aquaculture policy and rural development

A somewhat different situation can be found in the linkages between aquaculture policy and rural development. The 1992 reforms had an impact on the aquaculture sector as the reforms opened up the possibility of fully privatising *ejido* land. However, there was considerable confusion and conflict over who should have the rights to the communal coastal lands and maritime areas that adjoined the *ejido* lands. This was complicated by poorly defined property rights, particularly over lands within and next to the federal maritime zone⁴, and by shifting coastlines which make maps outdated in some parts of the country. Indeed, the land tenure system has slowed the expansion of shrimp aquaculture with many cooperatives and *ejidos* preferring to maintain their rights and either develop their own operations or enter into joint ventures with private operators.⁵ However, the difficulties of joint work with cooperatives/*ejido* sector with respect to tenure, profit sharing and so on have meant that development has only just started to increase in recent years following years of frustrated developments. Linking private and cooperative/*ejido* producers through Partnership Associations helped the process.

Despite the difficulties, the cooperative sector has been able to participate in aquaculture development because it had rights to some of the prime locations in the bays, lagoons, and estuaries that adjoined their lands. A number of models have been used in the shrimp aquaculture sector (DeWalt *et al.*, 2002):

- A private company develops the infrastructure and operates the farm, with the cooperative sharing in the profits according to the number of shares they received for their land.
- A private company builds the infrastructure for a large farm and operates its own farm on part of the land, while the other part is given to the cooperative to build and operate its own farm.
- The *ejido* sells its land rights and creates companies to run aspects of the farm’s operations.
- A private company rents or lease *ejido* land for a specified period of time.

The extent to which these developments have assisted in meeting rural development objectives and reducing rural poverty is unclear. There is limited hard data on impacts of the reforms on aquaculture development, relying mostly on anecdotal evidence. The tentative conclusion is mixed. Currently, around 80% of shrimp farms are semi-intensive projects with a low level of technology and operated mainly by peasants, who generate 48% of national production. There are concerns over access to suitable sites despite the abundance of such sites in Mexico. There are also concerns that the proliferation of small

scale aquaculture operations may reduce economies of scale and create difficulties for operators in accessing markets and the value chain. There is a risk that these issues may hamper the ability of aquaculture to play a stronger role in alleviating rural poverty.

Impact of fisheries support programmes

Financial support is provided to the fisheries and aquaculture sector through the *Alianza Contigo*, National Programme for Rural Aquaculture (*Programa Nacional Acuacultura Rural*, PRONAR), FIRA-FOPESCA, and the Public Works Programme (*Programa Normal de Inversion en Materia de Obra Publica*). The evolution and extent of fisheries support programmes was described in Chapters 10 and 12. The primary aim of this set of programmes is primarily industry development through the provision of grants and soft loans in support of infrastructure development, gear purchase, vessel modernisation, marketing studies, promotion, etc. However, two of the programmes, *Alianza Contigo* and PRONAR, have explicit redistribution objectives in their legislation in which priority for funding is given to poorer communities. A third programme, the Public Works Programme, has redistribution as a secondary consideration in its planning but it is not an explicit objective of the programme.

In addition to these sector specific programmes, there are several programmes that are more generally applicable. These include for example the sub programme for the strengthening of enterprises and rural organisations (PROFEMOR), subprogramme for the development of capacities in rural areas (PRODESCA) and the subprogramme of support to projects of rural investment (PAPIR).

Alianza Contigo

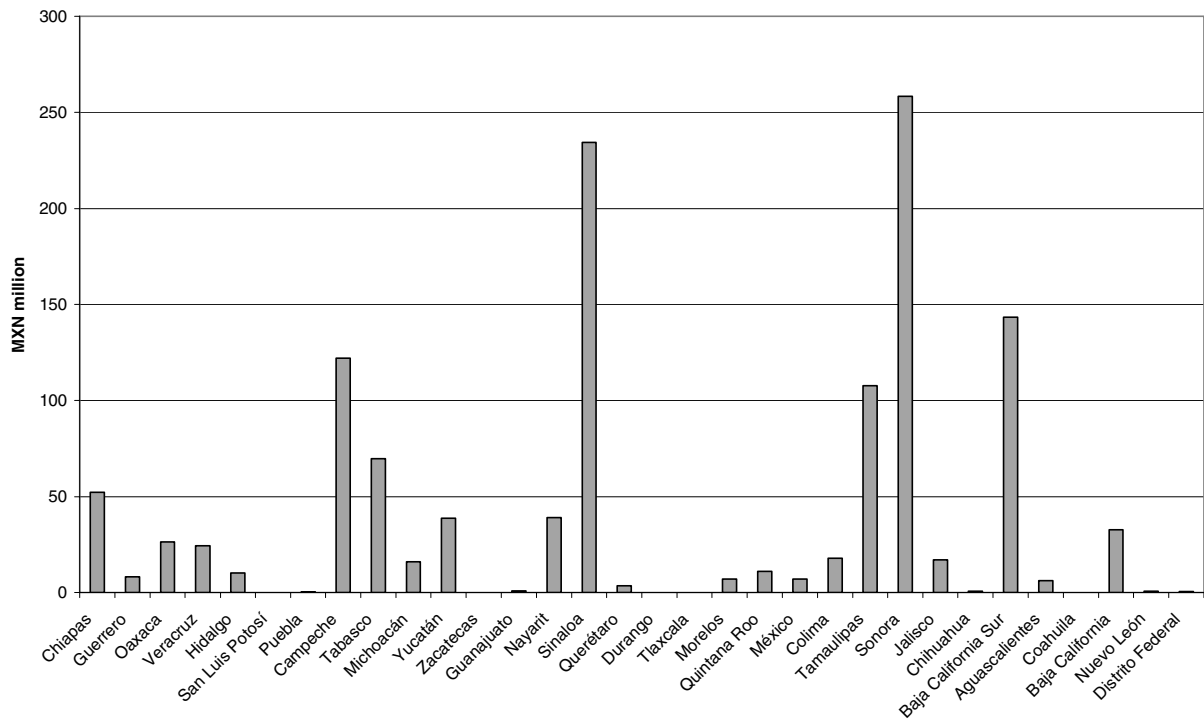
Alianza Contigo is the major funding programme for the sector and is financed by the federal government with matching grants from state governments and contributions from private investors. Expenditure under the programme totalled MXN 818 million in 2005. The programme is formally intended to benefit low income communities but does not include explicit targeting criteria to help achieve this.

The distribution of expenditures under *Alianza Contigo* is broadly regressive. This can be seen in Figures 13.3 and 13.4 which depict the total expenditure and average annual expenditure per fisher under *Alianza Contigo* for 2004 and 2005 across the states and ordered by degree of state marginality. Taking the average between the two years helps to smooth out fluctuations in funding flows. (Note that the data for Aguascalientes, an inland state with 37 registered fishers, has been truncated to improve the presentation of the data.) The largest payments per registered fisher occur in the richer states while per capita payments to the more marginal states are relatively lower. The regressive pattern of expenditure is even more evident if just the 17 coastal states are included (Figure 13.5). This result is, perhaps, unsurprising. *Alianza* funding seems to be directed mostly towards commercial fisheries, and towards production projects and action plans. Some of the poorer fishers and aquaculture operators may not be able to take advantage of these programmes as they tend to lack the resources to provide matching funds. In addition, around 26% of the expenditure under *Alianza* in 2005 was to fund a decommissioning scheme in the shrimp fishery, with just four states receiving 80% of the available funding (Sonora, Campeche, Tamaulipas and Sinaloa). The criteria under which the decisions for the recipients of this expenditure were made was the degree of excess capacity in the

fisheries of the state rather than the extent of rural poverty (although the two are often linked).

It is worth noting a caveat about the poverty index underlying the analysis. The data on the marginality of states refers to the state as a whole and does not necessarily mean that there is an even distribution of poverty across rural communities or occupations within a state. There may, indeed, be high variations in poverty at the local level, for example between fishing communities and agricultural communities. Data are not available on poverty indicators for fishing dependent communities within the coastal states. Collection of such data would be a useful addition to the database for the fisheries sector.

Figure 13.3. Total *Alianza Contigo* expenditure by state, ordered by degree of marginality, 2004 and 2005



Source: CONAPESCA (2006).

Figure 13.4. Distribution of *Alianza Contigo* expenditure per fisher by state, ordered by degree of marginality, 2004-05

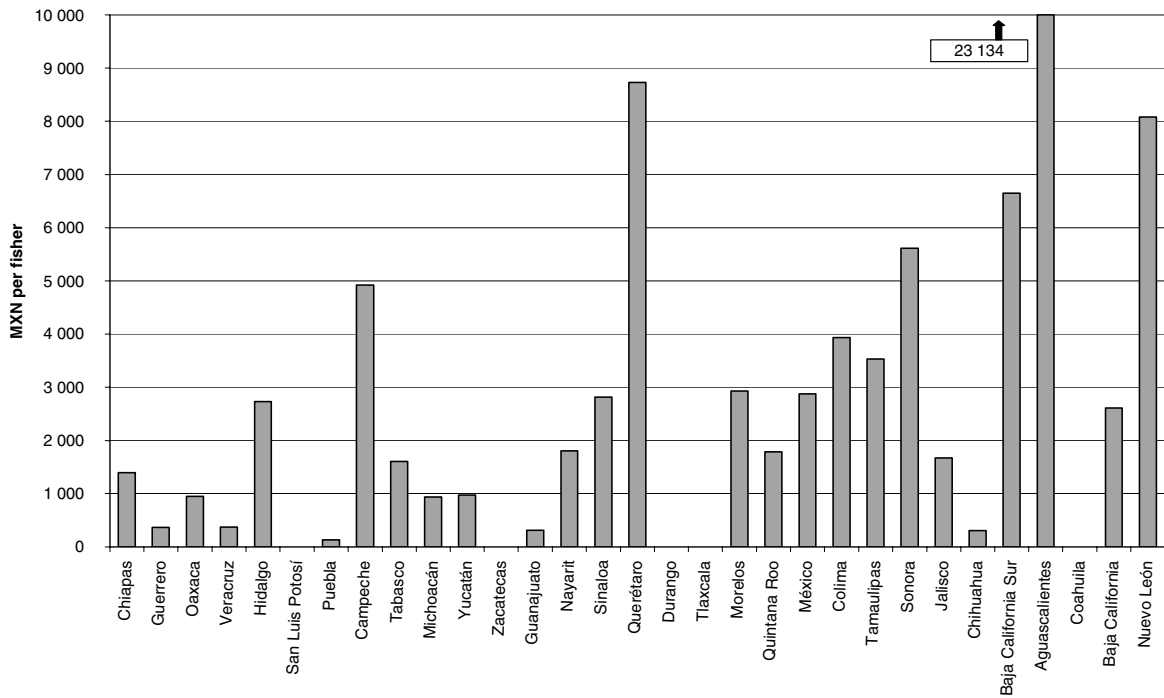
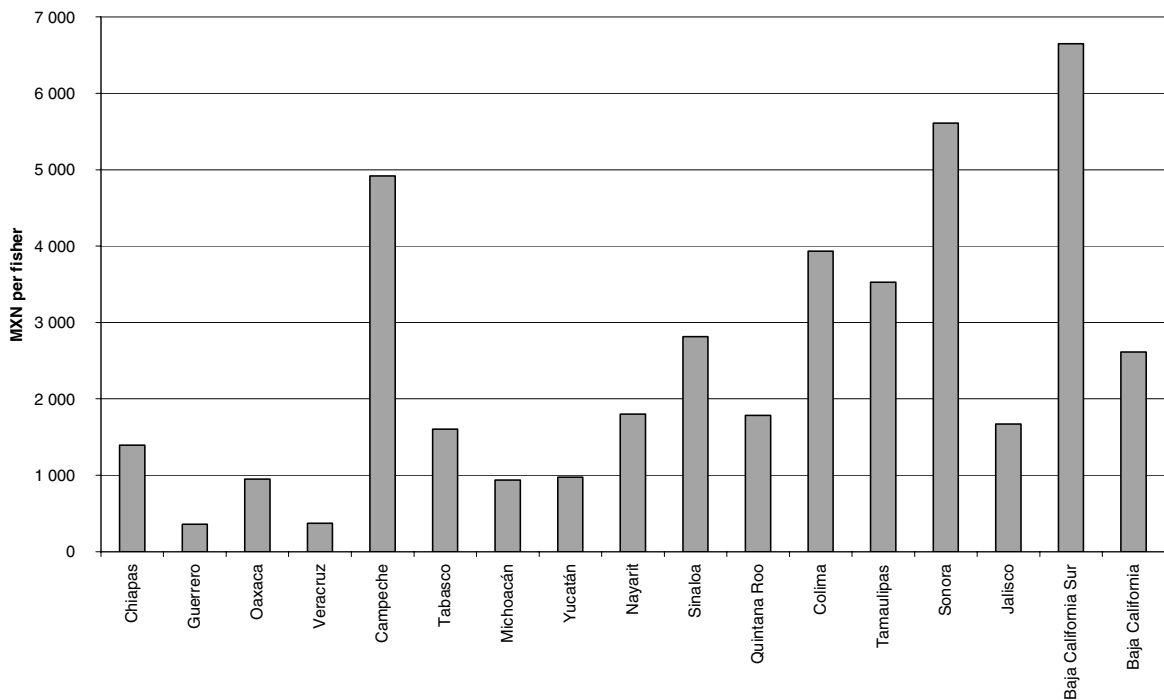


Figure 13.5. Distribution of *Alianza Contigo* expenditure per fisher by coastal state, ordered by degree of marginality, 2004-05



States ordered from poor to rich by the CONAPO marginality index. Average expenditures over 2004 and 2005 used to smooth out annual fluctuations in expenditure patterns.

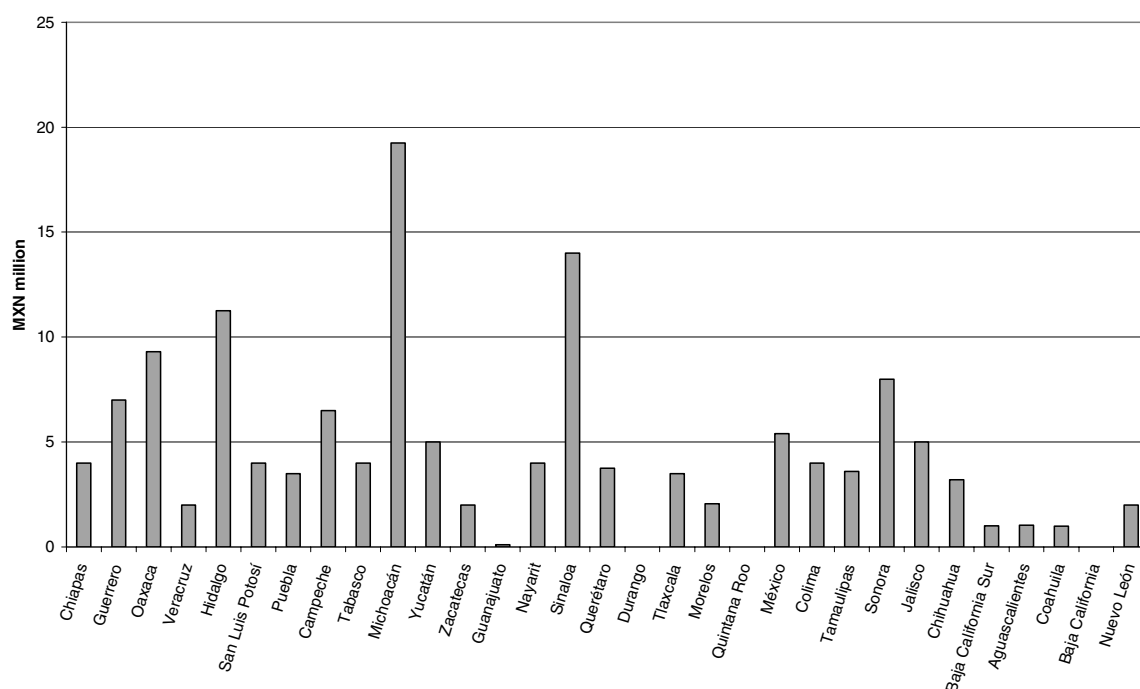
Source: CONAPESCA (2006).

Programa Nacional de Acuacultura Rural

As discussed in the previous chapter, the *Programa Nacional de Acuacultura Rural* (PRONAR) is a fairly modest programme that supports commercial projects in the sector focusing on species diversification, systems intensification, integration of chains and increasing value-added. The programme, which began in 2002, explicitly targets communities classified by the National Council of Population having an “average”, “high” or “very high” degree of social marginalization. It also targets *ejidatarios*, cooperatives, indigenous fishers and women’s groups, as well as small scale fishers. The programme is intended to assist these groups become established in aquaculture, taking pressure off agricultural activities and wild capture fisheries. The federal and state governments provided funding of just over MXN 100 million in 2004 to 22 states, with the federal government contributing 77% of the total. In 2005, the federal government provided MXN 77.8 million in 20 states.

There is a fairly progressive distribution of payments under PRONAR although there is still some distinct variation across states (Figure 13.6). Some of the less marginal coastal states who are major fishing states receive a high proportion of payments. The situation is more diffuse when the population of the states is taken into account. Figure 13.7 shows that the payments per person (total population) are more evenly spread out across the states. This indicates that the redistributive objective of the PRONAR payments is not being achieved as much as it could be.

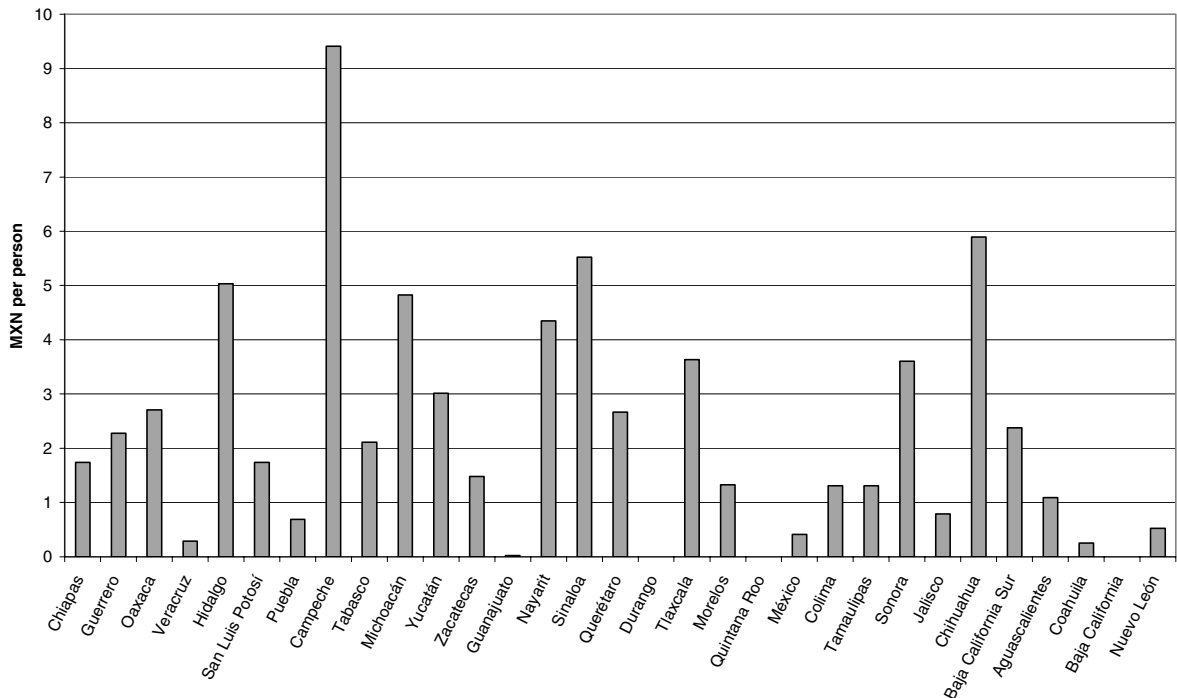
Figure 13.6. Distribution of average annual PRONAR expenditure by state ordered by degree of marginality, 2004 and 2005



States ordered from poor to rich by the CONAPO marginality index. Average expenditures over 2004 and 2005 used to smooth out annual fluctuations in expenditure patterns.

Source: CONAPESCA (2006).

Figure 13.7. Distribution of average annual PRONAR expenditure per person in each state ordered by degree of state marginality, 2004 and 2005



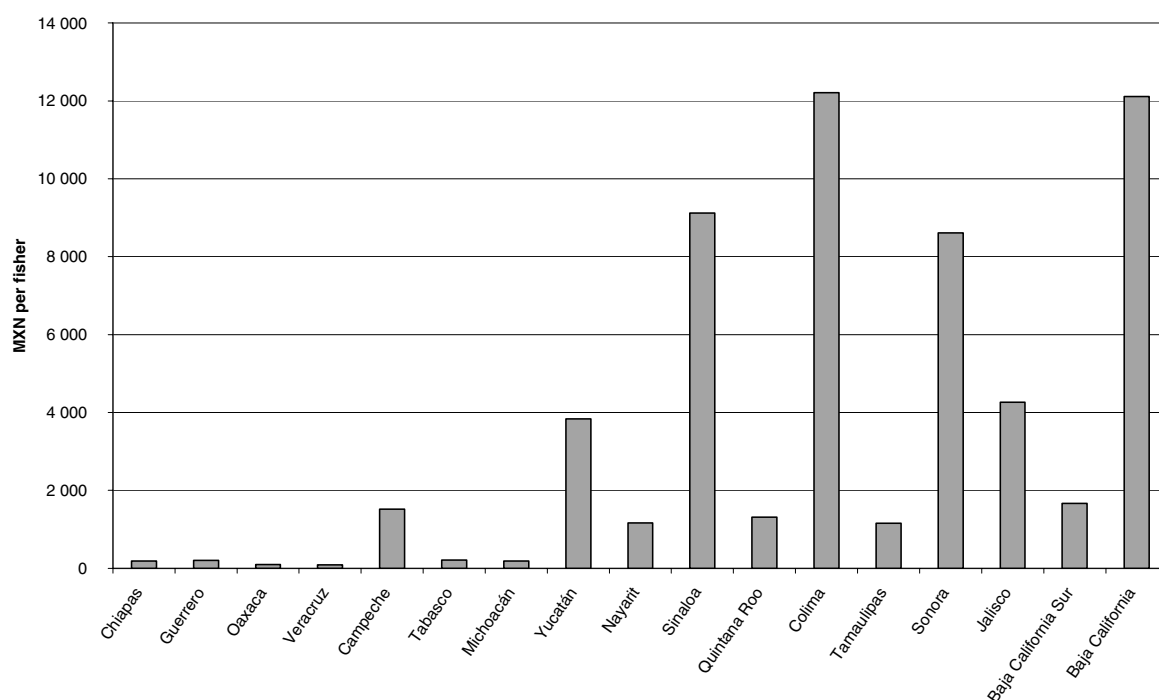
States ordered from poor to rich by the CONAPO marginality index. Average expenditures over 2004 and 2005 used to smooth out annual fluctuations in expenditure patterns.

Source: CONAPESCA (2006).

FIRA-FOPESCA

A similar exercise can be undertaken for expenditures under FIRA-FOPESCA, which provides soft loans and guarantees for fishers and aquaculture operators. Although this programme does not have a redistributive objective, it is useful to examine the distributive effects of the payments under the scheme in the context of rural development. Given that 93% of payments under FIRA-FOPESCA go to the coastal states, it is worth examining these in isolation from the inland states. The pattern of expenditures under FIRA-FOPESCA for this group of states is highly regressive with most of the payments going to the richer states (Figure 13.8). This may be due to the financially insecure basis from which fishers in the poorer states have to operate, with little capital and few prospects for expanding fishing operations beyond artisanal and subsistence levels. The bulk of the FIRA-FOPESCA funding goes to just four states — Sinaloa, Sonora, Colima and Yucatan accounted for 80% of the total funding in 2005 — each of which have well-established commercial fishing interests and a willingness and ability to avail themselves of the funding opportunities.

Figure 13.8. Distribution of average annual expenditures under FIRA-FOPESCA per fisher by coastal state ordered by degree of marginality, 1994- 2005



States ordered from poor to rich by the CONAPO marginality index. Average expenditures for the period 1994-2005 are used to smooth out annual fluctuations in expenditure patterns.

Source: CONAPESCA (2006).

Conclusion

In summary, the current fisheries management regime for the artisanal sector in Mexico has not helped the government meet rural development objectives in the coastal regions. In the medium to long-term, the open access nature of this sector will reduce both the environmental and social sustainability of the communities that depend on the fisheries resources. This is both poor fishery policy and poor social policy. While the broader solution to rural poverty lies elsewhere in the government's policy kit, changes to the management of the artisanal sector can ensure that fisheries policies can work with, rather than against, poverty alleviation objectives. Similarly, some reforms are required to the aquaculture policy to ensure that this sector can also play a stronger supporting role within a broad policy framework.

The set of fisheries support programmes is not really intended to be a major vehicle for income support in rural communities. The programmes are fairly modest and are dwarfed by the agriculture support programmes in terms of both resources and targeted population. However, the fisheries programmes still have a role to play in rural development and two of the programmes have explicit rural development objectives to this end. The broad conclusion from the analysis in this section is that the distribution of the initial transfers under the *Alianza Contigo* and FIRA-FOPESCA programmes are highly regressive while the distribution under the PRONAR is less regressive. Policy

makers should consider the distributional implications of these programmes in future decisions about funding allocations.

NOTES

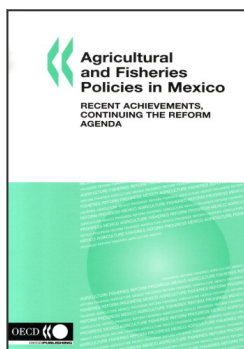
1. See Part II for a description of the CONAPO marginality index.
2. The data refer to the state as a whole and not to specific regions within a state (such as coastal regions). Regional disparities within a state can be significant and it is possible that rural poverty is concentrated in agricultural communities in a particular state but is not evident in fishing dependant communities. Such disparities can help to explain migration of workers both between sectors within a state and between states. However, no work has been done on the incidence of rural poverty in fishing regions and policy development would benefit from such analysis.
3. Since then, the government has not collected data on the number of vessels in this sector, meaning that there is no accurate assessment of the scale of the problem. See Chapter 11 for further discussion.
4. All coastal lands within 20 m of the highest tidal influence are part of the federal maritime zone.
5. See Part II for a more detailed discussion of the need to reform the land tenure system.

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