

Chapter 14.

Conclusions and recommendations

This study provides an assessment of fisheries policy in Mexico since 1990 against the objectives set for the sector by the government of Mexico. These objectives have shifted significantly over the period from 1990 to the present as the governments and their policy priorities have changed. Meanwhile, the fundamental concern for policy development is that the fisheries sector be placed on a sustainable basis with respect to resource utilisation, generation of resource rent, economic profitability, and sustainable livelihoods for fishing communities. The reforms that have been instituted over the period have sought to address parts of these concerns, but from different perspectives and with different priorities underlying policy actions. The conclusions and recommendations presented in this chapter seek to provide some guidance to policy makers on the effectiveness of the current fisheries policy framework and the priorities for future policy developments.

As a general observation, it is clear that the Mexican authorities have “picked the low fruit” on the tree of fisheries policy reform and the time has come to move on to the more challenging “high fruit.” The high value tuna and commercial shrimp fisheries are doing well (although further policy refinements are required) and the aquaculture sector is flourishing. The nature of these fisheries has made their successful management relatively more tractable. The more difficult challenges (the high fruit) lie ahead, particularly with respect to bringing the artisanal sector under control, reducing effort in a number of fisheries, and strengthening the institutional and governance framework for the sector.

Conclusions

Directions of fisheries policy

While policy makers recognised that reform of Mexico’s fishery policy was necessary in the early 1990s, the multiple changes in policy direction that the sector has experienced since 1990 have not been conducive to the development of a stable regulatory environment for the sector. The policies in place for the sector in the early 1990s did not provide a regulatory environment that encouraged a sustainable fishery sector and hampered the longer term economic prospects of the sector. The overarching objective at that time was to reach maximum sustainable yield for fisheries and government policies encouraged export-oriented growth in the sector. This had a number of consequences that set the scene for subsequent changes in policy direction:

- Excess fishing effort which had been assisted by government subsidies for fishers and minimum controls on fishing effort.

- Uncontrolled expansion in the small-scale and artisanal sector as rural policies and subsidies attracted people to coastal regions with the numbers of fishers increasing by 75% in the decade prior to 1992.
- Declining catch rates in many fisheries and resource stocks under pressure due to the de facto open access regimes in place and the limited incentives to conserve the resource.
- Poor profitability across the sector as a result of inefficient economic operating conditions, exacerbated by the strong role played by the cooperatives which effectively stifled efficiency and masked price signals.
- Considerable uncertainty regarding access rights for fishers in the sector, compounded by the dominant role of the cooperatives.

The shift towards an environmental focus in the early 1990s sought to address these shortcomings by reshaping the institutional framework and directing the sector towards a more sustainable footing. The major change was the incorporation of fisheries into the significantly larger Secretariat of Environment, Natural Resources and Fisheries (SEMARNP), prior to which it had been a separate Secretariat. Sustainability of fisheries and associated marine resources then became a priority of the government, with the precautionary principle being introduced as a guideline. The systematic collection and analysis of biological data was institutionalised together with the use of stock assessment techniques, leading to a sounder scientific basis for decision making. The role of the Mexican Official Standards (NOMs) in establishing management regimes for specific fisheries was established and, towards the end of the 1990s, the National Fisheries Charter became the major instrument for defining and promulgating management measures.

Greater attention was paid to the sustainability of fisheries resources. However, this was not supported with changes to management measures or support programmes to effectively control effort. In fact, only a few sedentary stocks were controlled through quotas; most fish stocks were managed with closed seasons, permits and certain restrictions on gear. The policy reversal which stripped the cooperatives of their exclusive access rights opened up many fisheries to private sector involvement and had the potential to improve the economic efficiency in the sector. However, it also exacerbated the problem of overcapitalisation and excess effort as private investment in the sector increased rapidly, supported by increasing subsidies under FIRA-FOPESCA and soft loans from BANCOMEXT. In addition, the expansion of the artisanal fishing sector continued without effective controls. The lack of a holistic approach to implementing the change in direction in fisheries policy resulted in a high degree of policy incoherence and significantly compromised the gains made from increasing the management focus on stock status and improved scientific assessments. The open access nature of the fisheries was not addressed.

The change of government in 2000 brought about yet another evolution in the policy framework for the sector. There was a shift back towards industry development and promotion, with significant emphasis being placed on aquaculture sector development and high value fisheries such as tuna and shrimp. This was exemplified by the incorporation of fisheries and aquaculture into the industry-oriented Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA). The broad objectives under the Sectoral Plan for the fisheries sector include fisheries sustainability and sectoral development objectives as it has continued to strengthen the role of the

NOMs and the National Fisheries Charter in developing sustainable management measures, improve the legal certainty surrounding fishing rights, and promote development of aquaculture.

Finding the policy balance between these often competing policy priorities is a challenging task and some progress has been made towards achieving such a balance in Mexico as a result of the reforms to fisheries policies that have taken place. The policy framework that is in place now is clearly more appropriate for helping to achieve sustainable fisheries and performs better in many areas than the previous regime. However, the reform process is not complete and there remains significant scope for further improvements and policy developments which build on the current policy foundations. Such policy improvements are possible and necessary if the fisheries sector is to make a strong contribution to the economic and environmental health of the country.

Achievements of fisheries policy changes

The progress that Mexico has made in changing its fisheries policies is evident in a number of areas, though so too are a range of remaining problems. The achievements of the policy changes, and areas where problems persist, can be summarised against the objectives contained in the sectoral plan.

Use fisheries and aquaculture resources in a sustainable way

- Management policies have had **mixed results with respect to the status of fisheries resources**. Of the 54 stocks for which stock assessments were available in 2004, 11 stocks are assessed as being overexploited while 34 stocks are fully exploited. The change in stock status for the assessed stocks in recent years has been marginal. Of the stocks surveyed in this report, two overexploited stocks recovered to sustainable levels (blue shrimp in Sonora, lobster in Yucatan) while four stocks deteriorated to being overexploited (brown shrimp in Sinaloa-Nayarit, lobster stocks in the northern and southern areas of the Baja California Peninsula, red sea urchin in the Pacific, Queen Conch on the Banco Chinchorro). Given that the recovery of fish stocks is generally a long term process, it is not unexpected that there is little change over the four year period examined. However, further efforts are clearly required to reduce the number of overexploited stocks and reduce fishing pressure on the large number of stocks that are currently fully exploited.
- There has been **marked success in reducing bycatch** in some fisheries. This has been particularly evident in the Pacific tuna fisheries where there has been a 99% decline in the number of dolphins caught per set between 1986 and 2003 through the use of selective fishing practices and technologies. The rapid and proactive introduction of turtle-excluder devices in the shrimp fisheries ensured that Mexico was not drawn into lengthy trade disputes as was the case with the dolphin-tuna issue and was able to maintain production and exports of this high value species. In other fisheries, bycatch reduction measures are gradually being introduced, although more remains to be done.
- The **negative environmental impacts of aquaculture have been reduced**. Mangrove destruction for the construction of fish farms has been largely halted. Mexico's aquaculture sector operates in a way that allows the sector to promote itself

as being able to provide national and international markets with “clean and green” products. This has been helped by the establishment of the network of Aquaculture Centres to help improve the aquatic health of fish farms as well as train operators in appropriate sanitary and aquatic health practices. However, concerns remain about the effect of public works such as canal construction and lagoon dredging on the shrimp larvae and juveniles, and on sedimentation in the waterways. There are also issues of coordination between government agencies with overlapping regulatory responsibilities for key aspects of aquaculture operations, particularly environmental management, land use approval and health and sanitation policy. Action is clearly needed to reduce red-tape and improve policy coherence in order to facilitate the further development of this emerging sector. In particular, action is required to develop a coherent, transparent, risk-based set of environmental parameters for aquaculture operations in order to reduce the costs and uncertainty associated with environmental compliance.

- **The status of inland fisheries remains a concern.** The constant increase in fishing effort in river basins, coastal lagoons and protected areas is a direct consequence of the growth in the working age population who have few employment alternatives in communities bordering inland water zones. The river fishers tend to concentrate on the more profitable fisheries, such as shrimp, lobster, and oyster, which permanently increases the fishing effort brought to bear on those resources. Addressing the inland fisheries issues should be a priority but will require the involvement of other policy areas, particularly with respect to rural development.
- **The transparency of stock assessments, resource status, and management measures has continued to improve.** The National Fisheries Charter is now an established feature of the management landscape and serves a crucial role in improving the access of various stakeholders to information of fish stocks in Mexico. The coverage and detail of the Charter is extensive, providing comprehensive data on 96% of the species captured in marine waters. The effectiveness of the Charter could be further improved by more closely integrating it with management plans for individual fisheries.

Increase the economic and social profitability of fisheries and aquaculture

- There is **limited information on the economic profitability of commercial fisheries.** Anecdotal evidence indicates that certain segments of the fisheries sector generate intramarginal profits, most notably the tuna fleet and the commercial shrimp fleet. However, the fact that too much effort remains in many fisheries suggests that any rent generated in the sector will be quickly dissipated as vessels increasingly compete for available resources. Further anecdotal evidence suggests that this is indeed the case for many of the sedentary and small scale fisheries where excess effort combined with illegal fishing have reduced profitability. The overwhelming focus on technical measures and input controls, coupled with a lack of clearly defined access rights, exacerbates this problem. In areas where there have been innovative management regimes in place, particularly local co-management initiatives for area-based fisheries, there is evidence that resource rents and profitability is increasing and resource use conflicts declining. No surveys of costs and earnings are undertaken making it difficult to draw broad empirical conclusions about the success of policy reforms in achieving this objective. While from a

pragmatic perspective, such surveys may not be perceived as the highest priority for authorities at this stage, they would nevertheless provide important information about the economic effectiveness of different management regimes. Future work on this area is required.

- **Subsidies have increased** in the sector as part of a general push to modernise engines and gear, improve infrastructure and reduce costs of fishing operations. While these have improved short-term profitability in some fisheries and helped to support some poorer fishing communities, many of the subsidy programmes will adversely affect the long-term resource sustainability and economic profitability of the sector, particularly those that are directed towards modernising vessels, increasing engine power and reducing operating costs. Many of these subsidies effectively mask the price signals for inputs, distorting the operating decisions of fishers and generating increased fishing pressure in the predominantly input-controlled fisheries. They also create a culture of subsidy dependence which reduces economic flexibility and social resilience. Some reduction and redirection of support, both in terms of objectives and recipients, is required.
- The **tendency to use artisanal fisheries as a social safety net** will exacerbate existing problems of resource conflict, stock degradation and rural poverty in the coastal regions. This is especially evident in the shrimp fishery where conflicts over access between different fleet segments continue unabated. To some extent, this is outside the immediate purview of fisheries policy as it is generally more appropriate to use social policy tools to address rural poverty issues. However, there is no doubt that the lack of control over expansion of the artisanal fleet is not conducive to achieving social or rural development objectives, nor the sustainability of the resource. A more holistic approach needs to be undertaken, ensuring that the fisheries and rural development policies are mutually supportive.
- **Rural aquaculture** is being promoted as a means of getting artisanal fishers out of fishing and into the aquaculture sector. It has had a marginal impact in some areas. The recent FIFOPESCA initiative in the Gulf of Mexico is a concrete example of this strategy and provides a useful guide for the future.

Increase legal certainty in fishing and aquaculture activities

- **Reforms to the system of permits** have helped to improve the legal certainty for commercial fishers. The decision to restrict the number of permits to one per vessel will assist management authorities in gaining a slightly greater degree of control over fleet expansion. The four year time limit for permits provides some degree of certainty for fishers. However, given that the permits are almost always automatically renewed, it is not clear that the length of validity of permits is a major issue for fishers. The decision taken to no longer issue 20-year concessions for commercial fishing was sensible as there was a lack of appropriate management policy instruments encouraging economic efficiency and managerial and technological innovation, leading to an excess of latent capacity and poorly performing companies. Nevertheless, the current permit system could be improved to strengthen and better define access rights (including introducing transferability and improving divisibility and security of title), as well as incorporate effective mechanisms for revoking permits.

- **Maintenance of long term concessions for aquaculture and tuna ranching** provides long term certainty for investors and facilitates access to credit for operators. These 20-year concessions are renewable for a similar period and are also transferable, allowing for the entry of new participants in the sector and improving economic efficiency in the sector. This is a positive step and should be maintained.
- The **performance of fisheries enforcement is beginning to improve** following a period in which there was an enforcement vacuum due to shifts in administration policies and structures. The introduction of vessel monitoring systems (VMS) in the Pacific fleet and the use of observers in the entire tuna fleet and in a portion of the Pacific swordfish fleet are important positive steps forward. Plans to extend the use of VMS to small scale and artisanal vessels and observer coverage to parts of the shrimp fishery will reinforce these improvements. However, enforcement efforts are still hampered by a lack of resources and a poor institutional structure. This is exemplified by a split in enforcement functions between government agencies (CONAPESCA, PROFEPA and the Navy) and the fact that CONAPESCA has no legal power to enforce its own regulations without referring them to the National Prosecutor. There is also an acknowledgement within CONAPESCA that enforcement of regulations within the artisanal fisheries and many of the small scale fleets is virtually impossible with current levels of resources and without having a significant impact on the livelihoods of the poorer fishers. Innovative ways of enforcing regulations are therefore required for these fleets. Overall, a more cohesive organisational enforcement framework should be implemented as a priority.
- There remain **problems with illegal fishing** and inadequate monitoring and reporting of catches which undermines the advances made in the permit system and stock assessments. While illegal fishing is not a problem for the tuna fishery, it remains a major concern for many inshore fisheries (for example, shrimp) and sedentary fisheries (such as abalone and Queen Conch). An additional concern is the ability of the Mexican judicial system to adequately prosecute fisheries offences, although this largely lays outside the remit of fisheries policies. Further efforts to police illegal fishing are required, including the development of co-management schemes where appropriate to help strengthen fishing community commitment to sustainable fisheries.
- **Elimination of the 1992 reserved species regulations for cooperative societies** in commercial fishing opened up the possibility of private investment participation in the extraction and cultivation of the species that command highest commercial prices, such as shrimp, etc. However, it did not resolve the ongoing conflicts between the small scale and large scale fishers in the shrimp fleets.

Promote support programmes and services to fishing and aquaculture activities

- Government financial transfers to the marine capture industry account for two-thirds of total transfers to the fisheries and aquaculture sector. **Support to the marine capture sector as a proportion of the value of landings increased** from 14% 1996 in 1996 to 19% in 2004 and is marginally below the OECD average. Most of the transfers in this sector (72%) are directed towards direct payments and cost-reducing transfers, primarily payments for diesel subsidies, direct grants and a decommissioning scheme for the shrimp fleet. There are some concerns that such

transfers, in the absence of effective constraints on effort and capacity, will adversely affect the long term sustainability and profitability of the sector. While decommissioning schemes are widely regarded as central to capacity reduction efforts, it is essential to ensure that they are carefully designed so as to avoid providing perverse incentives to fishers which hamper capacity reduction efforts. Cost recovery for a range of fisheries services provided to the commercial sector would be appropriate.

- **Spending on the aquaculture sector has increased** in recent years through the *Alianza Contigo* programme and the *Programa Normal*, reflecting increasing government focus on the development potential of the sector. The expenditure has led to, amongst other things, the establishment of the network of aquaculture centres, shrimp handling facilities, and improved understanding of aquatic health management by aquaculture operators. These achievements have helped the aquaculture industry to grow at a rapid rate. However, it would be appropriate for the government to institute some degree of cost recovery for these expenditures, particularly those related to the establishment, maintenance and operation of the infrastructure facilities.
- The ability and willingness of the sector to gain **access to financial markets** has increased and companies are beginning to make increased use of the loans and guarantees provided by BANCOMEXT to facilitate export-led developments, and the soft loans and credit guarantees available through FIRA-FOPESCA. However, equity may be an issue as the programmes tend to target larger commercial operators in the fisheries and aquaculture sectors and poorer applicants often cannot provide the required matching funds to take advantage of the programmes. These types of programmes will only partially address this deficiency and further attention needs to be paid to the use of more innovative financial mechanisms as well as to broader financial sector policies.
- The development and implementation of **mechanisms for consultation and stakeholder involvement** has been a positive step. Extensive consultative mechanisms are in place for dialogue between Federal, state and municipal governments in setting NOMs, allocating funds under the various support programmes, and implementing management arrangements. Stakeholders also have a number of forums in which they have potential to influence policy development. However, like most such frameworks, the results of consultation efforts will only be as good as the faith that all parties bring to the discussions. Consultation without some assurance that views will be taken into account will prove to be hollow. There is some concern that the role of scientific advice in informing the consultation mechanisms and management settings is weak and that many of the management decisions are based on considerations other than science-based analysis.
- The **decentralisation of decision making power and management responsibility** has been initiated and continues at a very cautious rate. The relocation of CONAPESCA from Mexico City to Mazatlan can be viewed as the first step in the process, accompanied by the establishment of the regional offices of INP. A regionalisation process for fisheries has the potential to improve transparency, increase stakeholder involvement, enhance enforcement efforts and better target funding for research and support. At the same time, regionalisation needs to be

carefully designed and well-resourced within an overall institutional framework that works to support a well-articulated vision for the industry and to avoid political interference in management. This will require a robust and resilient institutional structure.

Summary

- In summary, Mexico has made progress in the course of its reforms to the fisheries sector. The changes that have been implemented help to move the sector towards a more sustainable and profitable future. However, it is clear that more needs to be done to embed and build on these policy changes. In many ways, the future path for policy development in the sector will be more challenging as there will be difficult policy tradeoffs to be resolved. This will present policy makers with a more politically difficult task than the reforms undertaken during the previous decade as the next stage of policy reform will need to address issues in which entrenched interests have strong incentives to resist change.

Recommendations

Priorities for the sector

There are two top-line priorities for the Mexican government with respect to fisheries policy. First, the Mexican government should develop a higher-level, long-term vision for the future of the fisheries and aquaculture sector in order to provide an opportunity for ensuring that the vision and strategies can transcend political administrations and reduce long-term uncertainty in the sector. Recommendations for further adjustments in Mexico's fisheries policies need to be framed by a vision of Mexico's fisheries sector in the future. The objectives articulated in the new Fisheries Law provide a sound basis for the future as they include an array of resource sustainability, economic and social concerns, building on the advances made in recent years. However, achieving a balance between industry development, resource sustainability and coastal poverty alleviation is a difficult task. Searching for such a balance requires a clearly articulated vision for the future of the fisheries and aquaculture sector, and such a vision appears to be lacking at the moment.

The second priority should be the maintenance of a stable regulatory environment for the sector. The changes in policy direction experienced since 1990 have not been conducive to maximising the potential for the fisheries sector to generate long-term net economic benefits for the country. The need for a stable policy framework is particularly acute for the fisheries sector where management policies should be geared to enable long term, sustainable utilisation of available resources. Multiple changes in policy direction over the last 15 years have compromised the resource and economic sustainability of the sector over the longer term. Under the Mexican political system, such shifts are, to some extent, unavoidable where new plans are put in place with each change in administration. However, they should reflect minor course corrections rather than wholesale shifts in policy priorities.

From the various policy statements and objectives produced in recent years, coupled with the objectives under the FAO Code of Conduct for Responsible Fisheries and the

OECD's guiding principles, it is clear that the articulation of such a vision can be readily developed and would centre around the following goals:

- Contribute to overall economic growth.
- Ensure sustainable resource use.
- Increase the economic resource rent from fisheries and aquaculture.
- Ensure resilient fishing communities, without dependency on government subsidies.
- Reflect the societal benefits and costs of impacts on the environment in the decisions of its agents.
- Be responsive to market signals in both input and output markets.

This vision is of a fishery sector where, amongst other things, regulations are based on sound scientific and economic advice; effort is effectively controlled (and preferably “self-regulated” through the use of market mechanisms); fisheries are not the only recourse for unskilled or displaced labour in the absence of a social safety net; fishers are not dependent on government subsidies to maintain profitability; biological diversity is respected; illegal fishing is an exception and not commonplace; and stakeholder consultation and empowerment is a central feature of the institutional framework. The fisheries policy regime that will bring about this vision is one that recognises the potential for private markets to work, while finding the correct policy levers that will align private and societal benefits and costs. Fisheries policies that attempt to increase producer income or to improve sectoral growth by using subsidies, failing to reduce effort or inadequately enforcing regulations could have the opposite result. Such policies may penalise long-term development and delay the eventual achievement of this vision for Mexico's fisheries by failing to exploit or even undermining its own comparative advantage.

It is important to recognise that some of the necessary policy changes do not come within the remit of fisheries policy. Some general lessons from OECD work point to contributions that may be made by non-fisheries policies. Macroeconomic policy is critical: the negative effects of the currency crisis in the middle 1990s show the vulnerability of the poor. The need to improve education and reduce poverty extends throughout the economy, and requires nation-wide action. Improvements in institutions and governance that could offset the negative effects of the six-year political cycle by providing for greater continuity in the public service are best addressed directly, rather than by re-designing programme implementation to generate transparency and support.

This vision of fisheries depends critically on further evolution of the fisheries policy regime and economy of Mexico. Based on the achievements to date and taking into account the broader context, Mexico is well placed to make further reforms in fisheries policies in the direction of the vision given above.

Actions for further reform

The existing array of policies can be enhanced to consolidate and strengthen the achievements of the reforms undertaken to date, and to ensure that government policies can effectively realise the long term vision for the sector. In considering the necessary actions for further reform, it is important to recall that fisheries are a dynamic system with many integrated components. Changing one component of the system will have

consequences for other parts of the system: some consequences will be anticipated and well-understood, while others will be unexpected. It is important to take a holistic view of fisheries policy reform and understand that reforming one aspect in isolation may not necessarily lead to improved overall fisheries outcomes. A good example is the use of decommissioning schemes in a fishery, the use of which will be ineffective if they are not accompanied by measures to effectively restrict future effort expansion in that particular fishery. Policy makers should therefore take a holistic and integrated approach to reform to ensure that the benefits of policy changes are maximised while minimising the costs.

An agenda for further policy reform should cover the following key areas:

- Recovery plans for overexploited stocks.
- Controlling and reducing fishing effort.
- Development of management plans.
- Use of economic management instruments.
- Institutional structure, including decentralisation, stakeholder consultation and scientific support.
- Improving coordination of approval and management requirements for aquaculture.

Immediate efforts should be undertaken to put in place **recovery plans for overexploited stocks**. There is nothing to be gained in delaying action on this important resource sustainability issue. Declining catches and catch rates will merely encourage a shift of effort to other fisheries and increase pressure on other stocks.

- To achieve stock recovery, the government should develop and implement integrated management plans for overexploited fisheries with specific, measurable goals for stock recovery based on scientifically-derived reference points. Stronger enforcement of existing regulations for remaining fishers should be an integral part of stock recovery plans.
- Such management plans should also incorporate measures to permanently reduce effort and fishers in these fisheries as any gains from temporary effort reductions will quickly be dissipated if the underlying causes of the excess effort are not addressed. So, while immediate effort reduction measures should be undertaken (including, where appropriate, extended closed seasons, fishing moratoriums and suspension of licences), further management reforms for affected fisheries are required, such as strengthening access rights and introducing time-limited vessel decommissioning and licence buyback schemes and introduce quotas when technically feasible (see below for further discussion of decommissioning schemes).
- The fact that 5 of the 11 overexploited stocks are sedentary species should make the development and enforcement of stock recovery plans and enforcement of regulations more feasible. Indeed, some of these fisheries have already had been subject to recovery plans and this experience, though unsuccessful to date, will facilitate the development of further recovery plans. In particular, the concept of recovery plans is now embedded in the mindset of some fishers and this can be used to advance stock recovery efforts.
- The development of stock recovery plans for shrimp, grouper and other fishes is more challenging as they are subject to greater conflicts between users. The pacific shrimp fishery, in particular, has a large artisanal component that increasingly

competes directly with industrial fishers. While the fishery has a management plan in place, it has not proved to be particularly effective in reducing conflict and easing fishing pressure. The use of more innovative management measures is required to address fundamental resource conflicts in this fishery. Consideration should be given to the use of transferable effort quotas and co-management arrangements, coupled with significant control on further expansion of the artisanal fleet (see below for further discussion).

In addition to stock recovery, it is clear that further measures are required to **control fishing effort** in many fisheries.

- The use of **decommissioning schemes**, recently trialled in the shrimp fishery, should be extended. Care needs to be taken in the design and implementation of these schemes as they can quickly become embedded in the expectations of fishers, resulting in perverse incentives to stay in the industry to wait for a government payout to leave and thereby reducing industry flexibility. The schemes should be credibly announced as being “one-off” schemes for each fishery and the availability of decommissioning payments should be strictly time-limited. Cost effectiveness can be improved by using auctions, rather than fixed payments per vessel, to identify vessels to be scrapped. As is currently done, the permit attached to a vessel should be retired as part of the decommissioning package. It is very important that decommissioning schemes are introduced together with other measures that will effectively prevent capacity and effort increasing in a fishery.
- There appear to be few rules on the replacement of vessels, increasing the scope for technological creep as older vessels are replaced with more modern vessels with greater catching power. While fleet modernisation has been seen as a desirable process in the past, it is appropriate to consider introducing restrictions on the allowable increases in engine and catching power of new vessels, including elimination of subsidies for vessel and engine purchase and modernisation.
- The **use of observers should be extended** within the high value fisheries, with the costs being at least partly recovered from the industry. The innovative financing schemes used to run observer programmes in the tuna, swordfish and shrimp fisheries provide a good model and should help ensure the cost-effectiveness of such programmes. The use of observers should only be instituted where the societal benefits, including the collection of scientific information and improved compliance with management measures, outweigh the cost of the schemes.
- **Better targeting of financial support** should be a priority. The majority of Mexico’s financial transfers are directed towards direct payments and cost-reducing transfers and this should be reduced. Authorities should also re-examine the regional and fleet destinations for expenditures. In particular, it is not clear why commercial fisheries require financial support, particularly if they are generating resource rents and making profits. If particular fleets are not generating rents or profits, then the problem is the more fundamental one of inadequate management, and the provision of subsidies will merely delay and exacerbate the underlying problem.

The growth in the number and power of the **artisanal fleet is a major concern**, especially in the shrimp fishery, but also in many fisheries in the poorer coastal regions and inland waters. This is a classic case of too many fishers chasing too few fish, coupled with a large amount of illegal fishing. The current situation of keeping these fisheries as *de-facto* open access fisheries will only serve to augment rural poverty in these dependent

populations and will lead to long-term resource depletion. It also needs to be acknowledged that fisheries policy is not the appropriate instrument to address widespread poverty concerns; social policy is much better suited to this purpose. It is closely linked to overall economic development of the country, and to the development of economic alternatives in coastal regions. This is essentially a matter of people and community management, an issue that also goes beyond fisheries policy. 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 are a number of steps that the government can take to begin addressing the issue:

- At the moment, there is no clear published data on the artisanal fleet and this would be a necessary first step in determining the magnitude of the task confronting the government.
- It is necessary to improve the surveillance and enforcement capability of CONAPESCA, including an adequate resource base. This should also include an institutional structure which ensures CONAPESCA has a unified control structure for fisheries enforcement.
- Extend the process of installing VMS on small scale and artisanal vessels with cheaper, new generation VMS units. This will assist in monitoring this segment of the fleet, and will help support future efforts to control the location and intensity of effort.
- The use of decommissioning schemes for the artisanal sector is unlikely to be successful without some means of restricting those who leave the sector from re-entering. The cost of *pangas* is so low that such re-entry is quite feasible. Indeed, it is possible that any payments from decommissioning will be reinvested in the fishery.
- A useful step would be to examine the feasibility of local governance mechanisms in particular fisheries as discussed below with respect to community based management.

A system of **fisheries management plans** should be instituted. While a few fisheries have management plans in place, these have generally been *ad hoc*, fragmented and effective in only some cases. Comprehensive management plans could build on the current system of NOMs and the National Fisheries Charter, and would provide a mechanism for long-term planning for individual fisheries. Their development and implementation could be undertaken within the consultative framework that is already established and functioning for a number of fisheries. They would, however, require some legal status in order to be meaningfully enforced. The major benefit to such an initiative would be to unify the sources of management advice, provide a holistic approach for managers, and improve the transparency and certainty for fishers.

Market-based instruments should be introduced for those fisheries where the necessary biological, economic, legal and social conditions combine to increase the probability of a good management outcome. The heavy reliance on the use of limited entry (through permits) and technical measures to control effort is unlikely to be effective in the longer term. Indeed, they have resulted in technological creep and input stuffing, and have increased fishing pressure. Altering the economic incentives faced by fishers, and harnessing the power of the market to efficiently allocate resources, will improve the

economic viability and adjustment capabilities of the sector. It should be recognised that there is a wide range of market-based instruments and that individual transferable quotas are not the only available economic instrument for managing fisheries. A range of innovative management mechanisms have been successfully used in other OECD countries and the conditions are ripe for their selective use in Mexico's fisheries. Some stakeholders may consider it premature to consider the introduction of market based management into the Mexican fisheries sector, particularly given some of the challenges currently presented by the issues of judicial enforcement, overfishing, and excess capacity. However, experience has shown that there are significant benefits in combining capacity reduction programmes with market based management measures as they tend to be mutually reinforcing if properly designed.

- A necessary condition for the use of market-based instruments is a strong system of clearly-defined **access rights** that are exclusive, transferable, and legally enforceable. Such a system is currently lacking in Mexico where, at the moment, access rights are poorly enforced. Improvements in this area may need to be part of an economy-wide reform process to improve the legal regime surrounding productive assets in general. One of the challenges facing the Mexican fishing industry in this regard is the very large artisanal fleet in the poorer regions where the application of property rights concepts may be difficult to enforce. Variants of market-based instruments, such as community based management approaches, may be useful in such circumstances.
- Although the present management system under the IATTC does not provide for such a measure, the tuna fishery could potentially benefit from the use of **individual transferable quotas**. It is a single species fishery with well-defined stocks, a small fleet, and a sound resource base. Introducing transferability into the existing system, perhaps with limits on quota concentration to allay fears about consolidation, would improve the efficiency of the fleet, enhance short and long term adjustment and improve resource rent generation.
- The use of **individual transferable effort quotas** (based, for example, on vessels or gear units) could be considered in fisheries where the species characteristics mitigate against the use of output based quotas (for example, the commercial shrimp fishery and some single and multi-species fisheries). These are used extensively elsewhere in the OECD with a great deal of success.
- Other forms of market based mechanisms such as **community-based management** could be introduced in other fisheries, particularly for sedentary species such as abalone, oysters, mussels, lobster which are well-suited to area-based management. Such management arrangements already exist informally for a number of fisheries and the concept could be formalised and extended.
- Experience with market-based instruments in other OECD countries indicates that the introduction of such management changes **requires the active support of industry** to be successful. Indeed, in many cases, industry has been one of the major proponents of reform, working in concert with government to establish a more sustainable and profitable industry. This highlights the need for institutional arrangements to allow for extensive stakeholder consultation with the expectation of a high degree of government responsiveness to issues raised during consultations.

The actual process of policy change depends critically on the **institutional structure** governing Mexico's fisheries sector. The structure within which policy decisions are

discussed, designed, developed and implemented is important for the eventual acceptance and success of the reforms. For this reason, the Mexican government should undertake further development of the institutional structure for the sector to ensure that it works for the reforms rather than against them. One of the central concerns expressed by industry and others in the course of preparing this report is the incorporation of CONAPESCA into first SEMARNAP and now SAGARPA at the level of an Under-Secretariat. This largely reflects a concern about a perceived lack of influence on fisheries matters within the Federal government as a result of having to compete to be heard within a large department covering many (mostly agricultural) sectors. These concerns were exacerbated by the transfer of CONAPESCA from Mexico City to Mazatlan in 2001. There are, of course, costs and benefits associated with this institutional arrangement and it is incumbent on the government to determine which arrangement best meets their objectives. The location of CONAPESCA in Mazatlan suits the objective of bringing decision making closer to some of the stakeholder communities. Its location within a major fishing region of Mexico is appropriate, although care needs to be taken to ensure that its decision making processes and consultation is seen as inclusive across the other fishing regions.

- An institutional development that is worth examining is the establishment of CONAPESCA as a **functionally independent agency within SAGARPA**, with an independent budget line and devolved decision making powers on fisheries issues with a direct line of reporting to the Secretary for Agriculture. In addition, the institutional structure needs to be reorganised to provide CONAPESCA with the necessary powers and functions to effectively undertake fisheries enforcement as a unified control structure. This also requires adequate resources to be made available. The use of cost recovery in some fisheries could assist the resourcing issue.
- The **decentralisation of institutional arrangements** should continue. At the moment, this process is somewhat haphazard with no clear guidance as to the government's intention. A clear plan and appropriate commitment to funding is required with the aims of increasing transparency, accountability, and stakeholder participation and empowerment. Some of the ingredients to further decentralisation are already in place:
 - Mexico can be naturally divided into the four coastal regions (Regions I – IV) and the inland waters, each with distinctive regional ecological characteristics and policy issues.
 - Regional consultative mechanisms are in place for some fisheries.
 - The National Fisheries Institute (INP) has a strong regional network through the Centros Regionales de Investigacion Pesquera.
 - State fisheries offices exist, although these are mostly in name only as they consist of a single under-delegate located in the SAGARPA state offices and report to SAGARPA state delegates. This institutional framework is largely inefficient as the fisheries component drowns within a bureaucracy which is not conducive to sound fisheries management.

This basis could be further developed to provide an appropriate level of regional management that is representative, transparent, responsible and responsive, allowing for fishers to be empowered within the decision making system. Concerns over corruption or biased decision making can be addressed by ensuring a wide stakeholder involvement

(including environmental NGOs and community groups as well as fishers' representatives), transparency of analysis and advice, and accountability mechanisms for advice given and decisions taken. The major risk to be wary of is the creation of an unwieldy hierarchical structure that is essentially a top-down, command and control structure. This will very quickly lose legitimacy amongst fishers and other stakeholders. The benefits of decentralised decision making lie in improved stakeholder input to scientific analysis and regulatory design, increased acceptance of regulations, and potentially lower enforcement costs. The major cost involves an up-front investment in institutional capacity building.

- A major element of a more decentralised institutional structure is an increased reliance on **community based management** to assist in the better management of inshore, artisanal and inland fisheries (discussed above). It could also provide the basis for enabling authorities to better manage conflicts between stakeholders, especially for the shrimp fishery.
- There is clearly a need to increase the resources and expertise availability to the National Fisheries Institute (INP). Sound scientific advice, including socio-economic analysis, underpins successful fisheries management and the INP faces a funding and expertise shortfall that needs to be addressed. Given that there is considerable benefit to the industry from the provision of INP's scientific advice, some of the costs of the INP should be cost recovered from the commercial fishing industry.
- At this stage, it is important to note that fisheries policy changes do not come free of charge. It is clear that some investment in institutional capacity building is required. This will involve short-term costs, but can be expected to generate long-term benefits. Reforms that are directed towards more profitable commercial fisheries should be accompanied by cost recovery to ease the financial burden on the government.

There is a need to **improve agency coordination** for the approval and supervision of aquaculture projects. At present, there are too many overlapping and contradictory regulations governing aquaculture developments. A "one-stop shop" would be a useful innovation to streamline the approvals process. Further work is also required to develop a coherent, transparent, risk-based set of environmental parameters for aquaculture operations in order to reduce the costs and uncertainty associated with environmental compliance at the moment. In addition, it would be appropriate for the government to institute some degree of cost recovery for government transfers to the aquaculture sector, particularly those related to the establishment, maintenance and operation of infrastructure facilities.

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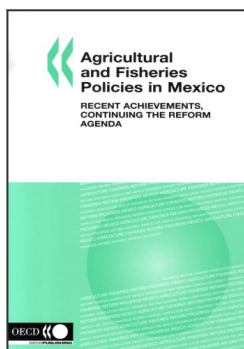
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