

Chapter 7.

Inputs, natural resources and institutions

Introduction

Many agricultural policies in Mexico focus on inputs to the sector, defined widely to encompass infrastructure, as well as finance, technology and energy. Some of these policies have already been addressed. The first part of Chapter 3 showed the size of transfers provided on the basis of input use, and the size and composition of support to the sector overall, including for research and technology. The second part of Chapter 3 assessed how subsidies tied to inputs are redistributed by interactions of agents in the market place – economic behaviour, such as farmers increasing the use of an input on the basis of which they receive a subsidy – as measured by welfare gains, showing that energy subsidies, for example, generate very little welfare for commercial farmers, none for subsistence farmers and do little or nothing for hired labourers. The preceding chapter showed that input subsidies oriented towards production are regressive with respect to income, so they do not tend to equalise income or alleviate poverty directly. Below, programmes supporting inputs are considered again, with a view to highlighting likely impacts, many of which are possibly unintended consequences, on input markets and on natural resources.

Assessments relating to natural resources are necessarily limited by the absence of data, as explained in Chapter 2. Water over-exploitation is commonly perceived to be a barrier to sustainable development in rural areas, particularly in arid northern and central regions if not in the south. However, data concerning a large number of aquifers are not gathered, and therefore one can only speculate. Gradual expansion of the knowledge base by measuring more aquifers and surveys of soils is a precursor to good policy. But so too would recognition that an unintended consequence of many policies, particularly those intended to help commercial farmers expand, may be improper uses of natural resources.

The institutional structure of policy design and implementation is not a primary focus of this study. However, some important insights have emerged during the course of the research and related consultations with industry and government officials that warrant consideration. Effective policy-making can be helped or hindered by the associated institutional arrangements, and a number of general observations are offered.

Infrastructure

The primary objective of many agricultural policies is to develop the market infrastructure. Inspection services are an important element of the market infrastructure, and guaranteeing a minimum level of safety and quality of food and agricultural products

is widely seen as a public service. In Mexico, in addition to the basic service provided at various levels of government, a federal initiative is intended to raise standards above the minimal level (Box 7.1). Information collection and distribution is also an element of the market infrastructure, one that is being met by means of publicly available data from SIAP and a recognition in the value of investing in communication technology in rural areas.

Box 7.1. SENASICA and voluntary standards

Federal standards support the market infrastructure by assuring buyers that goods will be of a certain quality and safe.¹ A programme at the national level provides the information, inspection and labelling services that meet foreign standards.

One example is meat. In Mexico, three different inspection systems for meat production exist: national animal health legislation, local regulations that are in place at constitutionally mandated municipal slaughter facilities, and informal or illegal. Since 2001, a fourth system involving a higher voluntary standard that producers may achieve has been put in place which may be accepted in existing or potential export destinations, such as the European Union, Japan, Korea and the United States. To encourage participation, the government charges only half the costs of the service and other government agencies subsidise the costs, including interest, of eligible capital projects.

A second example is avocado exports to the US, as described by Ardavin and Beckwith (2004). With the assistance of SENASICA, Mexican avocado producers in a certain region formed an association to work with the inspection service of the United States to permit fresh avocado exports to all the United States in 1997, for the first time since 1914. Producers of avocados for export were certified by a regional industry organisation in Mexico to ensure that they met USDA standards. As a consequence, these authors find, industry profits are higher and the certification process grants to the regional industry organisation substantial control over the economic rent – and strong incentive for member producers to police their own actions.

Government provided voluntary standards may compete with private voluntary standards. Thus, SENASICA offers no voluntary standard for poultry because the exported goods are produced by large multinational firms whose practices result in a widely tradable product that exceeds the base level of Mexican regulations already. In the longer term, the government service risks crowding out private initiatives, but this risk is less serious in the short term. Moreover, the programme uses foreign standards as a lever with which to encourage improvements in domestic practices. In the case of meat, regulations dating back 50 years to efforts to eradicate foot-and-mouth disease, albeit with subsequent revisions, compare poorly to the higher voluntary standards of this programme. As a result, the bulk of sales that achieve this voluntary standard (possibly 90%) are sold domestically and represent perhaps a third of domestic sales.

1. Interviews with SAGARPA officials.

Many agricultural policy programmes have market development as a tertiary objective. Some ASERCA programmes are operated with a view not only to meet their main objective, but also to help producers operate in competitive markets. For example, the subsidy for producers to buy options that hedge their price risk encourages producers to look to private mechanisms for reducing price risk. On the other hand, the Target Income programme that subsidises sales of certain crops in the event that price falls below a given level provides concurrently a certain level of protection against price risk for many commodities, as well, likely offsetting some of the effect of the hedging programme. Still, the major *Alianza* sub-programmes for investment look to producers to organise consultative bodies with the ability to identify projects to improve local infrastructure, as well as for other investments.

To some extent, these policy initiatives are trying to spark the generation of private markets that were suppressed by the interventionist policies implemented by

CONASUPO. Prior to the reforms of the 1990s, functions relating to distribution and storage, as well as purchasing and selling, of outputs and inputs were handled in part or in whole by agencies, which displaced private agents – and the regime of common guaranteed prices for all areas, irrespective of transportation costs or proximity to markets, displaced production.¹ The effect of flat pricing and rigid government purchasing necessarily gave rise to a non-entrepreneurial sector, which did not reward comparative advantage across regions, nor reward producers for innovations in production and marketing that might have led them to pursue activities that met better consumer demands.

The OECD Territorial Review (2003) establishes several deficiencies in Mexico's infrastructure that hamper its ability to compete, and to develop. Distribution systems for electricity and communication are poorly developed. The public services infrastructure also remains poor: education, as has been noted, lags in rural areas, and other services relating to health-care are not available in many rural areas. The north-south road networks are poor, with such transport particularly costly due to the centralisation on Mexico City. Port facilities and railways require improvement. These and other factors inhibit Mexican firms' ability to compete in international markets.² More generally, however, these policies delay economic development in Mexico, and decrease the pace at which growth in one area, or in urban areas, will be shared with other regions.

Some agricultural policies are intended to offset these disadvantages. For example, agricultural policy provides subsidies to energy use in the sector based, in part, on a formula that considers the degree to which Mexico's broader energy policy raises domestic prices. Likewise, some part of the funding under *Alianza*, although not strictly an agricultural policy alone, target investment in rural area infrastructure. These policies offer at best remedy for the symptoms; the fundamental factors are not the target of these policies. As such, they patch, instead of solve, the problem and, in doing so, may risk unintended consequences as noted below.

Finance

The array of agricultural policies that support investment and help producers to establish credit lines have achieved successes in the sense that many individual projects have been facilitated by public subsidies. At the same time, however, the development of a private banking sector in rural areas will depend critically on financial regulations that lie beyond the scope of agricultural policies. The long term objective of shifting producers to private market suppliers of banking services may be served to the extent that agricultural policies apply subsidies as part of a wider policy that enables private banking and eliminates direct public banking.

The currency crisis and the banking rescue (FOBAPROA) were barriers to the evolution of private financial institutions devoted to the rural sector.³ Moreover, the availability of subsidised financial services must necessarily inhibit the development of private services. Some programmes that address rural banking seek to avoid this unintended consequence by targeting second-tier bank services through subsidies granted to private rural lenders, instead of providing individual services that compete directly with those private lenders.

One of the objectives of the land reform was to provide *ejido* members with stronger claims over land that could then serve as collateral for bank loans, but the success of the land reform process has been somewhat limited, noted in Chapter 6. The remaining

barriers and disincentives to complete ownership and tradability of land limit the willingness of banks to accept *ejido* land as collateral. Moreover, of course, by limiting tradability of land the land reform rules may deprive farmers of a primary motive for seeking capital: trading land to unify disconnected small plots, or buying new land.

A system that identifies spending projects may bias public spending towards supporting certain types of investments. While recognising the advances embodied in the decentralised decision-making of *Alianza*, the consultative body system likely leads to greater expenditure on large projects that have widespread support. This focus may lead to investments on regional or community initiatives that have lower returns than smaller projects involving individual firms. Some *Alianza* sub-programmes support expanded irrigation projects, but facilitating water extraction seems at odds with objectives relating to water conservation – excluding those instances where the project is narrowly defined to improve efficiency or reduce costs of existing structures without providing incentives for greater water extraction from any depleted water supplies. Moreover, except in those cases where the programmes encourage or require diversification, the results of agricultural policies that support finance and banking may be greater risk held by individuals, regions and financial service providers for whom subsidies encourage reinvestment in the same commodity, subset of commodities or sector.

Box 7.2. PAASFIR and rural credit

A sub-programme in operation since 2003 subsidises farmers' access to credit (PAASFIR).¹ Groups of farmers organise to pool their credit needs. Farmers with access to this support report paying annualised interest rates on the order of 15% for very short-term credit, as compared to informal market rates of four times higher from suppliers.² The share of credit past due reported by development banks is less than 3% at Financiera Rural, as compared to 60% reported by Banrural prior to its termination. Four reasons may explain the improvement: (1) banks are paid directly; (2) the focus is on crops and area eligible for PROCAMPO or Target Income payments that generate automatically a resource with which to pay, whereas fruit and vegetable farmers have little access to this programme; (3) banks look to physical assets as an additional source of collateral; and (4) farmers' groups police their fellow members' behaviour, and the bank will seize their pooled collateral if any group member defaults. In fact, perhaps as many as 80% of participating farmers are black-listed by financial institutions for having failed to repay loans before.

1. Interviews with SAGARPA officials.

2. The OECD reports that the few banking services available to small enterprises leads them to rely on supplier credit (OECD 2005, p.79).

It is not only the sub-programmes of agricultural policy that target rural banking that affect investment in rural areas. Sadoulet *et al.* (2001) find that PROCAMPO payments generate income multipliers for *ejido* members because farmers use the payments to fund investment opportunities which they could not otherwise afford. By this argument, the inability of farmers to borrow from banks represents a failure in the market that can be overcome if farmers use the PROCAMPO money in place of loans. This research suggests that the multiplier of PROCAMPO is 1.5-2.6 for *ejido* households, and is higher for medium and larger *ejido* operations.

The provisions of PROCAMPO were changed in 2003 to permit capitalisation of benefits into a single payment. Recipients were able to convert the remaining payments before 2008, the scheduled termination of the programme, into a single immediate payment. This innovation permits producers who lack access to lending services to convert future payments into their present value. Evidence indicates that only a small part of PROCAMPO, equivalent to 17% of the payments, has been capitalised. It is difficult to

draw any conclusions based on the small number of producers who choose to capitalise future payments. This may be evidence that producers were not well informed of this option, that there are few opportunities for investing a one-off payment, that capital markets work well enough, that the implicit discount rate the government applies exceed producers' own or that producers expect that capitalising payments would jeopardise future benefits in the event that the payments are continued in some form beyond 2008. Moreover, the weight of different factors explaining the low rate of capitalisation likely varies among recipients.

The agricultural policies that target credit and banking services in rural areas are directed at symptoms of more fundamental problems. The legal framework governing the banking system, particularly the *amparo* that served as a procedural mechanism to block lenders' claims to collateral and the limits to foreign direct investment, was identified in Part 1 as crippling limits to the development of banking in general. While steps have been taken during the reform period to liberalise banking, many changes are only occurring now and, as noted in Part I, there remains scope for further reform. Moreover, as regards agriculture, remaining and dis-incentives imposed by the land tenure system such as the continuing inability of *ejidatarios* to free their land from communal control and the bounds on private ownership of land, noted above, largely preclude expansion of scale. Taking into account that the process of granting a loan imposes at least a minimum transaction cost on the bank or other provider of credit, then it may very well be the case that, at least during the period preceding the most recent reforms to the banking sector, potential loans to the agricultural sector were too small to cover even these fixed costs, let alone the sum of fixed costs and a risk-adjusted return on capital.

Technology

Chapter 3 noted that an array of programmes exist to help farmers determine their technological needs, to make required investments and to adopt techniques that use better technologies. Most of this type of support is provided by programmes under the *Alianza* umbrella. These programmes are differentiated by the sort of operations they target: fully commercial and technologically progressive; large but not yet fully commercialised or modernised; and small-scale with very basic practices. As a mechanism of improving targeting and transparency, many of these programmes require participation of producers at all levels of the project, even when setting priorities and raising funds. Matching requirements vary such that a smaller share is required from poorer recipients. A key element of *Alianza* is to organise producers in consultative bodies based on the commodity they produce, a difficult process that the government supported. These bodies, which also include representatives of other groups, such as buyers, set priorities for public investment. The consequence of this programme is allocation of public funds to improve production infrastructure and links along the chain from producer to consumer based on a consensual process.

Support to research and technological development may be seen as a public service for the sector. Targeting and transparency are improved by decentralisation (as discussed below), but there is a risk that the focus of these investments is excessively narrow. For example, maize is an historically important crop in terms of the number of commercial producers, the number of subsistence producers, the value of production and its role as a staple in consumption, so this crop stands out among the consultative bodies organised on a commodity basis and a substantial part of public investment in research and technology is directed to increasing the maize production capacity. More generally, by proactively

supporting the coalescence of producers on the basis of a particular commodity and providing support along lines recommended by that body, the support seems likely to tend to favour the research, applied technology and infrastructure of that commodity and tying producers ever more closely to a single commodity. Such a narrow focus of public investment risks reinforcing existing commodity production patterns — an opposite result to the steps towards liberalising producers' decision-making. Moreover, narrowly focused investments on traditional crops may direct public investment towards a crop in the production of which Mexico may not have a comparative advantage, or may be counter-productive with respect to other policy objectives.

Public investment in production technology must be carefully targeted; efforts to increase productivity of poor subsistence farmers in the sector require different tools than helping commercial farmers to advance. *Alianza* programmes to support production technology, at least, recognise the varying capacity of producers and varies matching funds as a consequence although, as noted in the previous chapter, much of this support remains out of reach of the poorest. More generally, public investment programmes must also overcome the difficulty of choosing the best technology that could be advanced to the greatest benefits for a targeted group at least cost to others or the widest possible benefits to all — a task that may well involve considering the comparative, rather than simply competitive, advantages of the country. To this task, however, must be added consistency with other objectives, such as reducing rural poverty and sustainable use of natural resources like water.

Natural resources

Below, the effects of policies that affect natural resource use are discussed, with special focus on water. Indirectly, policies that were found to tend to expand production consequently tend to exacerbate negative impacts of agriculture on natural resources. For example, support policies that create incentives for production of maize lead to greater use of water for irrigating maize. Broadly speaking, then, the replacement of market price support brought about by the elimination or reduction of tariffs since the early 1990s should be seen as likely a positive step: removing some of the policy-related incentives for commodity production led to lower commodity production, as discussed in the preceding chapter. Conversely, the introduction of payments based on output and input subsidies that tend to encourage greater production likely put more pressure on natural resources.

Communally held land remains a serious impediment to good resource management. The majority of agricultural area is held under the responsibility of *ejidos* of which two-thirds is held by the community as whole rather than being certified as an *ejidatarios'* own land. Communal land ownership leads to the problem of the commons: shared access leads to over-exploitation. Thus, communally controlled areas are more likely to suffer from over-grazing, deforestation, soil erosion or chemical pollution than privately held land, or even certified land. Moreover, policies intending to improve resource management in these areas are impeded as no individual is responsible, so the benefits and costs cannot be assigned or apportioned to individuals.

The ability to assess the environmental status of Mexico is impaired by lack of information. Initial efforts have begun to identify the status of soils and biodiversity, but these are as yet insufficient for policy makers.⁴ Out of 653 total aquifers in the country, less than a third have been studied and certified. Findings of over-exploitation or

salinisation among many of the 202 certified aquifers should not be extrapolated to the remaining 451 aquifers.

Agricultural policies recognising the impacts of the sector on natural resources have been introduced recently, as noted in Chapter 1, but these objectives are apparently of secondary importance at best, and progress is consequently limited. Although permitting PROCAMPO payments to go to land even if it is not used for production as long as it is well maintained is better for the environment than requiring production, this represents a passive approach of permitting, rather than proactively rewarding or requiring, environment-friendly practices. Other programmes that include environmental objectives often target a broad range of other objectives, of which reducing rural poverty often emerges as the dominant priority. While exceptions exist, such as PROGAN which has worked to improve grassland management, the expenditure under these programmes is substantially smaller than for others that encourage production, as discussed in Chapter 3. As long as environmental objectives are tertiary to the main thrust of Mexican agricultural policy, the current impacts of agriculture on the environment, including the deleterious effects on soil and deforestation, will continue.

Water

As stated in Chapter 2, the agricultural policies relating directly to water use support irrigation and, at the same time, some payments are made to buy concessions. The bulk of water policy falls under the responsibility of the CNA. Further subsidies to agricultural use of water are provided in the form of fees for water used for agricultural purposes that until recently accounted for only part of maintenance and operating fees, but in any case no fee for the water itself.

The observation in Chapter 2 that water availability in Mexico is quite high, but spatially not equal to demand, is supported by CNA data (Table 7.1). In fact, overall concessions amount to 16% of water available. In Northern and Central regions, however, concessions often amount to more than half of water availability, sometimes considerably more, whereas little of the available water is assigned to concessions in the South – as little as 1% in *Frontera Sur* which has a third of the available water. Agriculture accounts for three-quarters of concessions by volume and, in fact, tends to worsen slightly the spatial disparity of water supplies and concessions.⁵ Two-thirds of agricultural concessions are to surface water, with the remaining third tied to underground water supplies. Thus, it seems from these data, the concessions are vastly less than water availability, and most concessions are to surface water rather than to underground water.

Concessions, however, may not be well enforced. Actual extractions often exceed the amount permitted by the concession. Moreover, there is evidence that over-extraction is most common for holders of smaller concessions – the scale that is typically associated with agricultural activities. The costs of policing water access by scattered small-scale users in rural areas is substantial, so the first priority is likely to be large users in easier to reach areas. However, if concessions are not enforced, then they do not serve to limit water use, nor to establish a property right.

Water use subsidies, whether in the form of exemptions from fees or subsidies to energy needed for irrigation, give producers incentives to over- or mis-use water. Over-exploitation of aquifers, as noted before, has tripled over the last three decades from 32 to over 100 of the 202 certified aquifers in the country. Depleting aquifers leads to increased extraction costs, particularly energy use, as water levels fall. As producers do not bear the full costs of the water, they have less reason to ensure that irrigation systems function

properly, leading to average efficiency in agricultural water use as low as 43%.⁶ Within agriculture, allocation of water reflects in part the subsidies received, not necessarily the economic incentives. For example, only 10% of the water used in agriculture goes to high value activities, such as fruits, vegetables and oilseeds production, while 50% is used to produce low-value cereals.⁷ In light of these problems, the decision to end farmers' exemption from water abstraction charges from 2003 represents an important step towards proper pricing of access to water. Likewise, the 2004 amendment mandated water basin agencies that may improve water management as stakeholders are more directly involved in decisions about their water quantity and quality.

Table 7.1. Volumes of water available and concessions, 2004

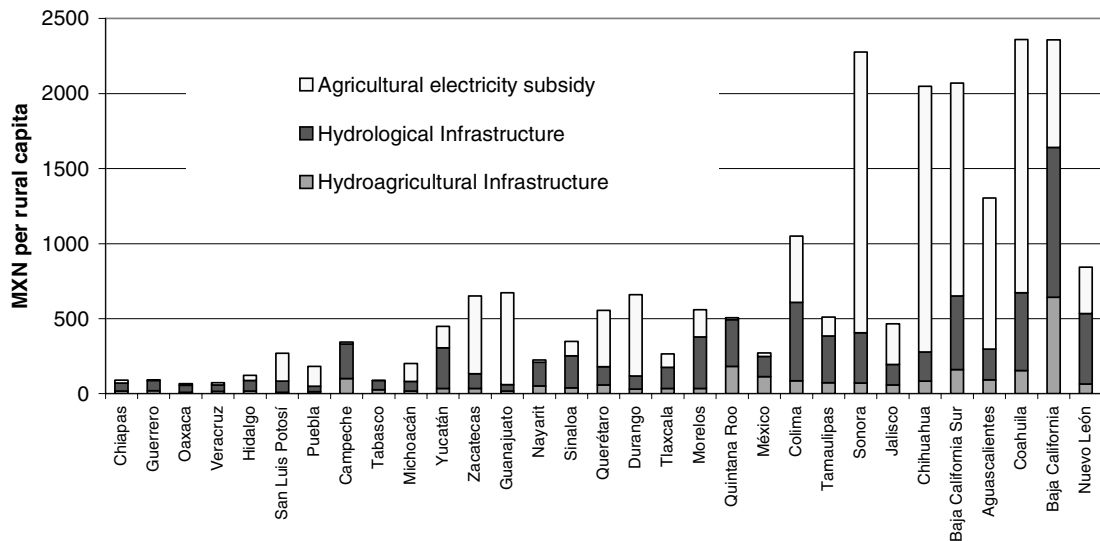
Region	Available	Concessions		Agricultural Concessions	
	Total	Total	to Agriculture	Surface	Underground
(cubic hectometers)					
Peninsula Baja California	4 423	3 807	3 108	1 711	1 397
Noroeste	8 213	6 419	5 505	3 214	2 291
Pacífico Norte	24 389	10 491	9 881	8 900	981
Balsas	28 924	10 417	6 179	5 113	1 066
Pacífico Sur	32 508	1 264	983	772	211
Río Bravo	14 182	8 539	7 072	3 791	3 281
Cuencas Centrales del Norte	6 841	3 745	3 275	1 223	2 052
Lerma-Santiago-Pacífico	36 977	13 210	10 920	6 398	4 522
Golfo Norte	23 347	4 503	3 500	2 719	781
Golfo Centro	102 544	4 622	2 205	1 790	415
Frontera Sur	158 260	1 999	1 499	1 138	361
Peninsula de Yucatán	29 646	1 708	1 078	28	1 050
Aguas Valle de Mexico y Sistema Cutzamala	3 934	4 706	2 257	1 932	325
Total	474 188	75 430	57 462	38 729	18 733

Source: Estadísticas del Agua en México (2005), Comisión Nacional de Agua y Secretaría de Medio Ambiente y Recursos Naturales, Chapter 3.

Garduno judges the regulatory system to be insufficiently developed, although the direction is appropriate. The emphasis began gradually to shift at the start of the liberalisation process, with the adoption of “user pays” and “polluter pays” principles. The authorisation of the CNA to enforce water rights was consistent with the overall liberalisation process. These and other reforms brought some clarity to the property rights provided by a concession, and provided administrators with some of the basic information required to assess the use of this natural resource. Even so, the exemptions granted to agriculture from many fees and from reporting, the system of water concessions, and the lags between the adoption of principles and the creation of an effective bureaucracy with sufficient information and powers, Garduno concludes, necessarily delay implementation of “user pays” and “polluter pays” principles.

Subsidised access to water may be intended as an element in the broader strategy to reduce rural poverty, but water subsidies are unlikely to serve objectives relating to poverty elimination well. Water subsidies are heavily concentrated in the rich northern states, Sinaloa, Tamaulipas, Sonora, and Baja California, whereas the three poorest states, Chiapas, Oaxaca and Guerrero, receive only 1% of this input support (Figure 7.1). In this case, the distribution of irrigation infrastructure reflects regional differences in water resources and geo-climatic conditions; it is difficult to imagine a redistribution of water subsidies to areas where irrigation is unnecessary. At present, electricity subsidies benefit 105 000 agricultural users, with average yearly subsidies per user of MXN 78 000 a year.

Figure 7.1. Distribution of public spending on hydro-agricultural infrastructure and agricultural electricity subsidies, by state ordered by level of marginality



Source: World Bank (2004). States ordered from poor to rich by the CONAPO marginality index.

There are very few agricultural policies targeting water use. More importantly, there is only limited information. The failure to collect information about the nation's water resources makes it impossible to go very far beyond anecdotal information in assessing policies (Box 7.3). In the absence of systematic reappraisals, knowledge of how agriculture uses water, or affects any other natural resource, is limited by the many years that have passed since the last census of agriculture in 1991. Surveys or other alternative data sources may not be very representative.

Box 7.3. Three examples of water rights

Example 1: a Northern district. In the 1960s, concessions for 600 million m³ of water were outstanding, but studies by the Mexico Institute for Water Technology (IMTA) estimated aquifer re-load capacity of 150 million m³, implying 450 million m³ over-extraction. Originally, a well 8-10 meters deep could extract water but now wells must drill down 130-160 meters, and the salinity is higher. Energy costs rise as the water must be pumped farther. Administrators estimated the value of the concession at MXN 2500/1000 m³ (in terms of a one-off payment) as, in many cases, rising costs of pumping the water rendered many activities that rely on water unprofitable.

Example 2: an area in Chihuahua. Ground water is used for 150 thousand hectares of agricultural area, leading to 942 million m³ of concessions, but the sustainable level is estimated to be 738 million m³ based on the availability of rain water. Irrigation channels were built that, due to extreme water deficit, never carried any water at all.

Example 3: settlers in a North-Central region. Settlers typically dig wells when they move into an area, increasing pressure on the local aquifer. Two studies of extraction and sustainable rates were conducted: CNA estimated an extraction rate of 400 million m³ and a sustainable level of 129 million m³, and IMTA estimated the extraction rate at 300 million m³ and a sustainable rate of 147 m³. Concessions for the region are known to be 140 million m³, but this figure is well below the actual extraction rate due to unregistered wells that are estimated to number 470 – more than two-thirds as many as the 656 registered wells. Enforcement to prevent over-extraction by unregistered wells is needed, but would be highly unpopular. The black market price of a concession may be MXN 3500-6000/1000 m³.

Source: Interview with SAGARPA officials.

Institutional structures of policy design and implementation

The institutional arrangements governing agricultural policy design and implementation in Mexico have evolved considerably over the period of this study, and a number of important improvements have been noted. For example, public support for commercial agriculture under *Alianza* is tied to a strong push towards decentralising decision-making, allocation of funds under *Alianza*'s rural development arm is based on mostly clear and transparent formulas, and the mechanisms of direct intervention through state entities such as CONASUPO have been replaced by a greater reliance on market signals. Industry participants, though, continue to express concerns that suggest flaws in institutional structures. These concerns include the proliferation of overlapping programmes in various Ministries and agencies, tension between legislative and executive branches of government, and uncertainty among agents active in the sector about the nature and direction of present and future policies.

Formulating and implementing policies

At the highest level, an explicit government-wide view regarding economic, social and political priorities for the medium-term should provide the logical starting point for policy review and development. Within this broad frame-work, all relevant Ministries and agencies need to work together to ensure that their individual efforts to contribute to the government's stated goals for the sector are as well coordinated, effective and efficient as possible. It is unclear to what degree this currently occurs. There is a widely held view that current policies related to agriculture, natural resources, rural development and rural poverty alleviation are not sufficiently co-ordinated and coherent. To the extent that this is the case, conflicting government efforts will lead to higher costs, failure to achieve objectives and an uncertain business environment.

The *Ley de Desarrollo Rural Sustentable* (Law of Sustainable Rural Development) of 2003 was an effort to improve the mechanisms of policy making. The law created a body, *Programa Especial Concurrente para el Desarrollo Rural Sustentable* (PEC, Special Competition Programme for Rural Sustainable Development), to review the goals and strategies of various federal agencies or actors encompassing all public policies towards the rural sector. The *Comisión Intersecretarial para el Desarrollo Sustentable* (Intersecretarial Commission for Sustainable Development) was empowered to formulate programmes for the rural sector, and shares control over the budget of PEC. While not yet thoroughly analysed, this law appears to have increased bureaucracy but not worked quite as intended; these new bodies have not exerted much apparent influence over rural policy as compared to the various Ministries, and co-ordination consequently remains insufficient. Further consideration needs to be given to alternative approaches that ensure that a more holistic view is taken of development opportunities and challenges for the sector.

Broad strategies and plans also need to be translated into clear and transparent policies and programmes that provide some measure of certainty to private agents. The overall business environment in which industry operates is determined by the cumulative impact of all policy measures, both economy-wide and sector specific, whether intended or unintended. Government policy making must recognise this reality. Policies and programmes should be designed to target objectives precisely and be tailored to provide the right amount of public support necessary to achieve those objectives. Policies and programmes should be constructed in a way that retains flexibility to adjust to changing

circumstances and at the same time establishes clearly the role policy will play so that agents will be able to plan accordingly. The one-year budget and planning cycle currently leads to unpredictable changes in allocations to major programmes such as PROCAMPO, and allocations to some programmes even change from month-to-month.

Policy design and implementation can also benefit from consultation with those affected by policies, and by systematic review and evaluation of policy performance. To the extent that consultation processes are in place in Mexico, they seem to be somewhat narrowly focussed and to serve to encourage special interests, but these mechanisms enable a positive dialogue concerning best policy approaches if only among a subset of people active in the sector. Information and review systems to monitor and revise policies, in light of practical experience, are seldom evident.

The political cycle

The six-year political cycle at the federal level has a profound impact on institutional arrangements and policy making in Mexico. A new President is elected every six years, and has the authority to replace the majority of federal government staff. At frequent intervals the appointed, as well as the elected, officials responsible for all levels of agricultural policy change. The result is a massive loss of institutional knowledge and expertise that unnecessarily handicaps policy design and implementation. While the other extreme of permanent employment with no conditions should not be viewed as a good alternative, the total rebuilding of bureaucracies at six-year intervals must be viewed as a serious impediment to good policy-making. This situation is compounded as similar processes takes place at lower levels of government as state governments, too, are generally replaced at six-year intervals – and on a three-year cycle for most municipal governments.

Decentralisation and information

The innovative decentralisation of decision-making to direct and monitor *Alianza* transfers has already been noted, and praised. More broadly, policy performance is improved by clear delineations of responsibility among levels of government, and even assigning certain responsibilities to bodies that do not correspond to the usual government levels such as entities to manage resources in a water catchment area.

There is no institutionalised process to conduct an agricultural census. This study, like most others, has had to rely at times on data relating to the circumstances and characteristics of Mexico's agricultural sector in 1991, when the last agricultural census was undertaken. Surveys, such as those referenced in this study, provide more current information, but are insufficient. The survey supporting World Bank research on *ejidos* should not be extrapolated to the entire rural population. Broad judgments about the status of rural Mexico based on ENHRUM may be questioned as only rural communities with 500 to 2 500 people are covered. Surveys by other Mexican Ministries focus on particular questions that may not provide necessary information specific to the sector. Firm and comprehensive statements about how the agricultural sector has evolved over the fifteen years since the last agricultural census – a critical period of reforms to border measures, market intervention and land tenure, and of such as *Alianza* – are consequently subject to doubt, and critical decisions relating to policy design and implementation are made on the basis of partial, or no, information.

Conclusions

The role of government investment in developing input and output market infrastructure must not be overlooked, and many aspects of the infrastructure in Mexico are deficient. Agricultural policies to support information systems and inspection services improve the environment for trading goods, domestically or abroad, but account for a small share of overall support to the sector. There is also a role for private investment, as noted in Part 1. Some input market deficiencies are explained by less than satisfactory performance of other, non-agricultural sectors, such as limited access to credit in rural areas or high costs to producers caused by energy policies. In these cases, agricultural policies may alleviate symptoms, but do not address fundamental problems and, as such, offer at best patches rather than solutions. At worst, they may create new problems: public finance replaces private finance; energy subsidies encourage overuse of energy and irrigated water; or policies intended to increase revenues of poor land-owners by increasing their technological capabilities in traditional activities fail as land privatisation remains incomplete.

It is difficult to draw conclusions about natural resources given the information available. Knowledge about the condition of water, both availability and quality, and other natural resources such as soil and biodiversity is incomplete. Nonetheless, however, the drain on water supplies is widely believed to be unsustainable, particularly in the arid and semi-arid regions, despite the present command-and-control system. Not only must concessions be limited, they must also be policed if property rights are to have meaning and a water market that matches sustainable supply and demand of water is to become possible. Recent amendments to water policies represent steps in this direction as farmers are no longer exempt from water abstraction fees, although they still do not pay for the water, and the water management structure may be improving. On the other hand, the conflicting outcomes of programmes addressing problems in input markets stands out: objectives relating to energy and investment seem to result in greater use of irrigated water, indicating inconsistency among policies. Programmes that take into account, or even focus on, environmental conditions are commendable, but account for a much smaller share of expenditures than programmes that encourage production.

Policies intended to encourage investment and technology in the agricultural sector benefit from decentralisation, by reinforced policing against corruption, and the likely effect on programme longevity as compared to the six-year political cycle at the federal level. The effect of decentralised decision-making on allocation of public funds is not so unambiguously positive in the long-run; the shift to local decision-making probably brings its support to bear on local problems much more quickly, but the structure of consultative bodies may cause over-investment in certain types of projects.

The institutional arrangements that govern agricultural policy in Mexico can be improved and warrant much greater attention. Meaningful co-ordination among officials whose activities affect the sector is essential to ensure a coherent set of policies is put in place. Responsibilities among Ministries, agencies and levels of government should be clarified in light of the over-arching priorities of government. Policies and programmes need to be targeted to explicit objectives, and implemented in a consistent and predictable manner. In the absence of institutional reform, current symptoms of weaknesses in policy-making will persist: programmes of different Ministries or levels of government will continue to overlap or conflict; expectations about future policies will vary widely, and will be perceived to be open to influence by the political interests of the moment; and public trust may be undermined by insufficiently transparent processes.

Policy decision making must be taken with a longer planning horizon in view. One step in this direction would be to lessen the defining nature of the six-year cycle at the federal and state levels, and the shorter municipal political cycle to maintain, in part, an objective and professional public service. And, of course, both elected and appointed officials would be well served by the systematic provision of relevant information and data on economic and social developments in the sector.

NOTES

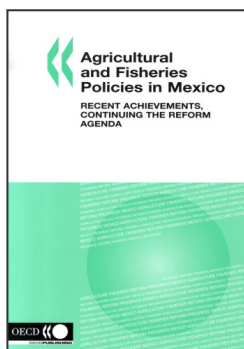
1. Ávalos-Sartorio, 2006.
2. OECD *Economic Survey of Mexico*, 2005, p. 26.
3. Brizzi, 2001.
4. OECD (*forthcoming 2007*).
5. The correlation between total concessions and water availability is -0.24, and the correlation between agricultural concessions and water availability is -0.27, according to these data.
6. *Programa Especial Concurrente para el Desarrollo Rural Sustentable*, 2002.
7. Alvarado and Kemper, 2001.

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