Chapter 6. Policies for a More Sustainable Agriculture

Scaling Up through Appropriate Policies

6.1 Several things are now clear with respect to sustainable agriculture:

i) The technologies and social processes for local level sustainable agriculture are well-tested and established;

ii) The social and institutional conditions for spread are less well-known, but have been established in several contexts, leading to very rapid spread in the 1990s;

iii) The political conditions for the emergence of supportive policies are least well established, with only a very few examples of real progress.

6.2 As has been indicated earlier, sustainable agriculture can contribute significantly to increased food production, as well as make a significant impact on rural people's welfare and livelihoods. But without appropriate policy support at a range of levels, these improvements will remain at best localised in extent or, at worst, wither away.

6.3 Clearly much can be done with existing resources. A more sustainable agriculture will not, however, happen without some external help and money. There are always costs associated with shifting from one way of doing things to another - the costs of learning new knowledge, the costs of developing new or adapting old technologies, the costs of learning to work together, the costs of institutions having to break free from existing patterns of thought and practice. It will also cost time and money to rebuild depleted natural and social capital.

6.4 Most of the sustainable agriculture improvements seen in the 1990s have arisen despite existing national and institutional policies. These will need major reform. Policies framed to deliver increased food production will have to be changed if they are to help deliver environmental and social benefits too. Food policies framed to help deliver cheap and abundant food regardless of quality will have to change too. And rural development policies and institutions focusing on `exogenous' solutions to the economic and social problems of rural communities are ill-suited to the needs of community-based and participatory development.

6.5 But there are very real constraints to overcome. Vested interests in maintaining the status quo will make any change difficult. Why should fertilizer companies support a transition to legume-based farming when this could mean this would cost them huge amounts of revenue? Why should a pesticide company be balanced in its presentation of different types of farming, when it knows some types of sustainable agriculture mean that little or none of its products will be used?

6.6 These are difficult problems. What we do know, however, is that both financial

and policy support will be vital to help a wider transition towards a more sustainable futures for agriculture.

Policy Discrimination

6.7 Unfortunately, most policy measures used to support agriculture currently act as powerful disincentives against sustainability. In the short-term, this means that farmers switching from modern high-input agriculture to resource-conserving technologies can rarely do so without incurring some transition costs. In the long-term, it means that sustainable agriculture will not spread widely beyond the types of localised success.

6.8 The principal problem is that policies simply do not reflect the long-term social and environmental costs of resource use. The external costs of modern farming, such as soil erosion, health damage or polluted ecosystems, are not incorporated into individual decision-making by farmers. In this way resource-degrading farmers bear neither the costs of damage to the environment or economy, nor those incurred in controlling the polluting or damaging activity.

6.9 In principle, it is possible to imagine pricing the free input to farming of the clean, unpolluted environment. If charges were levied in some way, then degraders or polluters would have higher costs, would be forced to pass them on to consumers, and would be forced to switch to more resource-conserving technologies. This notion is contained within the Polluter Pays Principle, a concept used for many years in the non-farm sector. However, beyond the notion of encouraging some internalisation of costs, it has not yet been of practical use for policy formulation in agriculture.

6.10 Agricultural policies that encourage modern farming by subsidising farm inputs, such as pesticides, fertilizers, credit and irrigation have reduced the economic viability of sustainable agriculture technologies for pest management. In Indonesia, for example, it was only the removal of pesticide subsidies in 1986, coupled with the banning of 57 rice pesticides, that has so allowed farmer-field schools to flourish and allow farmers successfully to make the transition to pesticide-free or low-pesticide rice farming. The trend in some OECD countries is now to levy taxes on pesticides so as to reduce their use (eg Denmark, Sweden).

6.11 In general, farmers are entirely rational to continue using high-input degrading practices under current policies. High prices for particular commodities, such as key cereals, have discouraged mixed farming practices, replacing them with monocultures. In the USA, for example, current commodity programmes inhibit the adoption of these resource conserving practices by artificially making them less profitable to farmers (Dobbs and Pretty, 2001).

Progress Towards Sustainable Agriculture Policies Since Agenda 21

6.12 The 1990s have seen considerable global progress towards the recognition of the

need for policies to support sustainable agriculture. In a few countries, this has been translated into highly supportive and integrated policy frameworks. In most, however, sustainable agriculture policies remain at the margins, with recognition of need not yet to be translated into actual policies.

6.13 The 1991 Den Bosch Declaration on SARD, adopted by the 1992 Rio Conference, called for the attainment of three essential goals: a) food security by ensuring an appropriate and sustainable balance between self-sufficiency and self-reliance; b) employment- and income-generation in rural areas, particularly in order to eradicate poverty; and c) natural resource conservation and environmental protection.

6.14 These goals were further elaborated as the blueprint for SARD in Chapter 14 of Agenda 21 on 'Promoting Sustainable Agriculture and Rural Development'. The challenge was set: ways had to be found to satisfy the demands of this growing population by creating the conditions for sustainable agriculture and rural development (SARD) that will increase food production in a sustainable way and enhance food security. It was recognised that this would require major adjustments in agricultural, environmental and macroeconomic policy, at both national and international levels, in developed as well as developing countries. The main tools of SARD would be policy and agrarian reform, participation, income diversification, land conservation and improved management of inputs. Its success would depend largely on the support and participation of rural people, national governments, the private sector, and international cooperation.

6.15 The Commission on Sustainable Development agrees that there has been growing awareness in most countries of the necessity and desirability of integrating environmental concerns into agricultural policies. OECD countries had expanded the use of economic as opposed to regulatory measures in recent years. Environmental taxes in the agriculture sector focused primarily on pesticides, fertiliser and manure wastes. Denmark, Norway and Sweden had all introduced taxes on pesticide use. Some OECD countries had set agrochemicals reduction targets. For example, Canada and the Netherlands had opted to cut pesticide use by 50 percent (base year 1985-88) by 2000, and Denmark by 25 per cent (base year 1991) by 1997. The Netherlands has also imposed an excess manure tax. Norway and Finland had introduced fertiliser taxes. Austria, Italy, Spain and Italy had established minimum forage areas for cattle (Pretty, 1998).

6.16 Notable progress on social capital development at local levels had been achieved in countries such as Indonesia, Sri Lanka, Pakistan, Tanzania and Zambia, where governments were experimenting with the introduction of new participatory and small community-based approaches for supplying farm inputs and services. Bolivia had recently embarked on an ambitious programme to promote more effective participation of rural people at the municipal level, and other Latin American countries such as Chile, Ecuador, Mexico and Venezuela had embarked on similar schemes. New cooperative legislation was in the process of being discussed and debated in a broad range of countries including Zambia, Guinea, India and Vietnam. With declining budgets for rural development, many NGOs were now

playing more significant roles towards enhancing people's participation. Rural people's organisations were now entering into the dialogue processes with Governments in shaping sustainable agricultural policies.

Progress within Countries

6.17 Although almost every country would now say it supports sustainable agriculture (no one would say the opposite – that they are against it), the evidence points towards only patchy reforms (Pretty, 1998, 1999). Only two countries have given explicit national support for sustainable agriculture – putting it at the centre of agricultural development policy and integrating policies accordingly. These are Cuba and Switzerland. Cuba has a national policy for alternative agriculture; and Switzerland has three tiers of support for both types of sustainable agriculture and rural development. Austria, Denmark, Sweden and Finland have given explicit national support for organic agriculture, but this has not necessarily impacted upon conventional farmers.

6.18 Table 10 contains a summary of the types of support given by countries to sustainable agriculture, and the associated emergence of large-scale sustainable agriculture on the ground.

Table 10. Selection of progressive policy reforms for sustainable agriculture according to degree of integration and observed outcomes

Countries with large-scale successes	Countries with significant localised successes
Cuba (national policy for alternative agriculture) **Switzerland** (3 tiers of support for both types of sustainable agriculture and rural development)	**Denmark and Sweden** (national support for organic farming; reduction policies for inorganic fertilizers and pesticides) **Finland** (agricultural and environmental scheme with incentives to farmers – 82% farmers joined)
Countries with explicit regional or provincial policy support (but not national)	
Brazil (zero-tillage and conservation farming in 3 southern states) **India, Rajasthan** (soil management support, incentives for biofertilizers)	**India, Gujarat** (participatory irrigation management; complete turnover to water users' groups)
Countries with supportive policy elements, but not integrated across agricultural sectors	

Kenya (catchment approach to soil conservation – 07-1 million farmers) **Indonesia** (banned selected pesticides; national programme for farmer field schools and IPM in rice – 1 million farmers trained) **India** (support for soybean processing and marketing – 5.6 m ha in 1996; up tenfold in 10 years) **Bolivia** (regional integration of agricultural and rural policies) **Burkina Faso** (Gestion de Terroirs land policy) **Australia** (national Landcare programme – 4500 groups) **Sri Lanka and Philippines** (water users' groups for irrigation management – 3500 groups (Philippines))	**Netherlands** (pesticide reduction policies; nutrient regulations) **Benin** (support for *mucuna* – 100,00 farmers) **Niger** (support for water harvesting) **India** (national participatory watershed management policy)

6.19 Three countries have seen sub-regional support: three states in southern Brazil, with remarkable effect on zero-tillage and conservation farming; some states in India, particularly Rajasthan for watershed and soil management support and incentives for biofertilizers and Gujarat for policy on participatory irrigation management, with complete turnover to water users' groups.

6.20 A much larger number of countries have reformed elements of agricultural policies through new regulations, incentives and/or environmental taxes, and administrative mechanisms, and these are having considerable though partial effect. These include Kenya (catchment approach to soil conservation); Indonesia (ban on selected pesticides, combined with national programme for farmer field schools and IPM in rice); India (support for soybean processing and marketing); Bolivia (regional integration of agricultural and rural policies); Burkina Faso (Gestion de Terroirs land policy); Sri Lanka and Philippines (water users' groups for irrigation management). But none of these countries has yet explicitly put sustainable agriculture at the centre of their policy frameworks.

6.21 An even larger set of countries have seen some progress on sustainable agriculture at project and programme level – but this still remains largely despite, rather than because of, explicit policy support. Most reforms, though, remain piecemeal, with sustainable agriculture still largely at the margins of conventional policy processes and aims. No agriculture minister is likely to say they are against sustainable agriculture, yet good words remain fully to be translated into integrated and comprehensive policy reforms (Pretty, 1999).

6.22 Sustainable agricultural systems can be both economically, environmentally and

socially viable, and contribute positively to local livelihoods. But without appropriate policy support, they are likely to remain at best localised in extent, and at worst simply wither away.

Alternative Agriculture Policy in Cuba

6.23 Up 1990, Cuba's agricultural sector was heavily dependent on support from the soviet bloc, importing 57% of all calories consumed, 94% of fertilizer, 82% of pesticides and 97% of animal feed. It was also paid three times the world price for its sugar. But in 1990, trade with the soviet bloc collapsed, leading to severe shortages in all imported goods. Over a very short period, a modernised agriculture was faced with the dual challenge of having to double food production on less than half the inputs.

6.24 The response of the Ministry of Agriculture was to declare an "Alternative Model" as the official policy for agriculture, which focuses on resource-conserving technologies that substitute local knowledge, skills and resources for the external inputs. It also emphasises the diversification of agriculture; the breeding of oxen to replace tractors; the use of IPM to replace pesticides; the introduction of new practices in science; the need for widespread training; the promotion of better cooperation among farmers both within and between communities; and reversal of the rural exodus by encouraging people to remain in rural areas.

6.25 The impact of the new policy has already been remarkable (Funes, 2001). There are now more than 200 village-based Centres for the Reproduction of Entomophages and Entomopathogens, and 90% of agricultural land uses monitoring for pests and diseases. Many biological control methods are proving more efficient than pesticides. The use of cut banana stems baited with honey to attract ants, which are then placed in sweet potato fields, has led to the complete control of sweet potato borer by the predatory ants. There are 173 vermicompost centres, the production from which grew from 3000 to 93,000 tonnes in 4 years. Crop rotations, green manuring, intercropping and soil conservation are all more common.

National Sustainable Agriculture Policy in Switzerland

6.26 Switzerland’s approach to increasing the sustainability of farming is highly progressive (Swiss Agency for Environment, Forests and Landscape, 1999). The Federal Agricultural Law was reframed in 1992 to target subsidies towards ecological practices. It was amended in 1996 as the `Agricultural Act 2002’. It differentiates between three different levels of support depending on the sustainability of agriculture. Tier one is support for specific biotypes, such as extensive grassland and meadows, high-stem fruit trees and hedges. Tier two supports integrated production with reduced inputs, meeting higher ecological standards than conventional farming. Tier three is support for organic farming.

6.27 The most difficult policy issue was the agreeing of standards for the reduced input,

integrated farming. Fortunately, Switzerland has had a network of over 200 farms testing the economic and ecological viability of resource conserving technologies and practices since 1990. This created a good empirical base and allowed for sharing of both data and perceptions so that common standards could be agreed.

6.28 Another vital difference between the Swiss style and most of those implemented under agri-environmental schemes in the EU is that responsibility to set, administer and monitor is delegated to cantons, farmers' unions and farm advisors, local bodies and NGOs. Policy has always sought to stop rural population decline in less favoured mountain areas, and so the importance of monitoring rural social capital is seen as a central part of agricultural policy. More than 20% of all 75,000 Swiss farms are now participating in more sustainable agriculture.

The Need for More Integration of Policy

6.29 What is clearly needed is much greater integration of policies across sectors. Environment Ministers of the OECD countries identified agriculture as one sector in which improved policy integration offered major returns. They noted that both environmental and agricultural goals could be pursued within the context of agricultural reform, with a view to moving toward sustainable agricultural practices (OECD, 1993).

6.30 In recent years, there has clearly been an increasing number of policies seeking to link agriculture with more environmentally-sensitive management. But these are still highly fragmented. As yet there is little sign of integration. Sustainable agriculture can only be achieved by integrated action at farm and community level. For it to succeed, this will require the better integration of policies too.

6.31 One problem is that `environmental' policies have tended only to green the edges of farming. An essentially modernist agriculture remains much as it ever was, but is now tinged green. Non-crop habitats have been improved, some hedges, woodlands and wetlands. But the food is largely produced in the conventional manner. The bigger challenge is to find ways of substantially greening the middle of farming - in the field rather than around the edges. A thriving and sustainable agricultural sector requires both integrated action by farmers and communities, and integrated action by policy makers and planners. This implies both horizontal integration with better linkages between sectors, and vertical integration with better linkages from the micro to macro level.

6.32 Most policy initiatives are still piecemeal. They affect a small part of a individual farmer's practices, but do not necessarily lead to substantial shifts towards sustainable agriculture. But measuring progress with environmental policy integration is more difficult than monitoring deterioration or improvement in the environment itself. The long delays between a policy action (such as on protecting the ozone layer), and its result some decades later means that waiting for firm evidence of success can take many years.

6.33 As illustrated in this report, sustainable and localised agricultural systems can be economically, environmentally and socially viable. This needs coordinated action by national governments to encourage and nurture the transition from modernized systems towards more sustainable alternatives. Without appropriate policy support, they will remain at best localised in extent and at worst wither away. As indicated above, some progress is being made on policy content. However, the policy process itself is a vital part of emerging sustainable systems.

6.34 Sustainable agriculture should not, therefore, be seen as a set of practices to be fixed in time and space. It implies the capacity to adapt and change as external and internal conditions change. Yet there is a danger that policy, as it has tended to do in the past, will prescribe the practices that farmers should use rather than create the enabling conditions for locally-generated and adapted technologies.

6.35 Farming and rural problems are always open to interpretation. As all actors have uniquely different perspectives on what is a problem and what constitutes improvement in agriculture, what is important is the focus on sharing these perspectives and insights. The question of defining what we are trying to achieve with sustainable agriculture is part of the problem, as each individual has different values and objectives.

Key Policy Options

6.36 In agriculture, the focus has been on a wide range of policy options that are available for encouraging changes in farmers' behaviour and practices. These fall into three categories: advisory and institutional measures, regulatory and legal measures, and economic instruments. In practice, effective transitions towards sustainable agriculture require a mix of all three approaches, and integration across sectors (Pretty et al, 2001).

6.37 Advisory and institutional measures have long formed the backbone of policies to internalise costs and so prevent agricultural pollution. These rely on the voluntary actions of farmers, and are favoured by policy makers because they are cheap and adaptable. Advice is commonly in the form of codes of good agricultural practice, such as recommended maximum rates of application of pesticides and fertilizer, or measures for soil erosion control. Most governments still have agricultural extension services and employ extension agents to work with farmers on technology development and transfer. Such advisory and institutional measures, though, do not necessarily guarantee outcomes with greater environmental or social benefits.

6.38 Regulatory and legal measures are also used to internalise external costs. This can be done either by setting emissions standards for the discharge of a pollutant or contaminant, or by establishing environmental quality standards that relate to the environment receiving the pollutant. Polluters who exceed standards are then subject to penalties. There are many types of standards: operating standards to protect workers; production standards to limit levels of contaminants of residues in

produce (eg pesticide residues in foods); emission standards to limit releases or discharges (eg silage effluents or slurry); and environmental quality standards to limit levels of undesirable pollutants in vulnerable environments (eg nitrate or pesticides in water).

6.39 But the problem with such regulations is that most agricultural pollutants are diffuse, or non-point, in nature. It is, therefore, impossible for inspectors to ensure compliance on hundreds of thousands of farms in the way that they can with a limited number of factories. Regulations are also used to limit or eliminate certain farm practices, such as the bans on spraying of pesticides close to water course and on straw-burning in the UK, or the mandatory requirement to complete full nutrient accounts for farms (eg in the Netherlands and Switzerland). A final use for regulations is the designation and legal protection of certain habitats and species. These can be set at national level, or at international level. Again, such designations do not guarantee protection, though they draw clear attention to their social value.

6.40 Economic instruments are primarily designed to ensure that the polluter bears the costs of the pollution damage and/or costs incurred in controlling the pollution (the abatement costs). This implies that the free input to farming, a clean or unpolluted environment, is priced and treated as if it were similar to other costs (such as for labour or capital). This is the polluter pays principle, which was accepted by all governments of the OECD in 1972, and later, in 1995, laid down in the Treaty of Rome (Conway and Pretty, 1991; Ekins, 1999). A variety of economic instruments are available for achieving internalisation, including environmental taxes and charges, tradable permits, and targeted or coupled use of public subsidies and incentives.