

## **Pakistan's Agriculture in the 21st Century**

RASHID FARUQEE

In Pakistan, agriculture, which accounts for more than 20 percent of GDP and provides more than 50 percent of jobs, has a special role to play in growth, poverty reduction, and environmental protection. Agricultural growth in the past thirty years has been impressive, at more than 3 percent a year. Sources of growth, however, have changed over the years—from the seed, fertiliser, and irrigation package of the 1960s, to intensification of water and fertiliser use in the 1970s, to improvements in crop management and incentives in the 1980s. Those sources of growth have all but run their course, and agriculture growth in the next century will depend on increasing productivity.

At present there are clear signs of stagnation in productivity growth. In fact, total factor productivity, a good measure of overall productivity, may even have declined since the mid-1970s due to resource degradation, failure to adapt technical change, and poor incentives, among others causes. Future growth through productivity increase, however, will require major changes in systems, policies, and institutions for agriculture. These changes are crucial because agriculture in the next century will continue to be key in achieving growth with poverty alleviation and environmental protection.

What policies and programmes should the government adopt to sustain and improve agricultural growth in the 21st Century? Before specific strategies are adopted, the appropriate role of the government should be clearly defined as limited to encouraging the development of a smoothly functioning market through institutional and regulatory reforms that facilitate private sector activities and market efficiency. In cases in which market failure is not an issue and intervention has led to market inefficiency the best strategy is to reduce the government's role through policy reforms and the strengthening of the process of market liberalisation. Thus, intervention failures should not result in situation worse than without intervention.

## RECOGNISING THE ROLE OF THE PRIVATE SECTOR

A key component of the government's strategy must be to reshape investment and public expenditure on agriculture. Spending should be focused on the provision of public goods and the correction of market failures, not on activities better suited to the private sector, even if such activities may be profitable. In areas such as poverty alleviation and environmental protection, where the government has a legitimate role to play, market-friendly policy reforms should be adopted to ensure economic efficiency and growth and to achieve the government's social goals.

### Changing Policies Affecting Incentives

Policies that affect incentives distort both input and output markets and result in a suboptimal allocation of resources. Changes in price policy, trade policy, and fiscal policy are needed if agriculture in Pakistan is to continue to grow.

### Price Policy

As part of structural reform agricultural output prices should be determined by the market, thereby allowing market signals to be transmitted to farmers without distortion. The government should remove all price supports and controls, not only because they distort market signals and represent a drain on the budget, but also because such liberalisation will improve production incentives for crops in which Pakistan has a comparative advantage. Price fluctuations that result from market liberalisation can be stabilised by other means, such as promoting on-farm storage, private sector storage, and futures trading.

The government should also consider ending the subsidy on wheat imports. Such a policy change would likely have little effect on consumers, since the price of flour is already determined by the market and is close to import parity. It would, however, help farmers, by moving the producer price of wheat toward the import parity level. At the same time the government would need to eliminate quantitative import restrictions on wheat and flour. Another desirable step would be to remove protection of sugarcane by eliminating support prices and sugar import restrictions, thus allowing scarce resources (such as water and land) to be used more productively.

Before it removes price supports, the government must ensure that a competitive and efficient private sector is ready to step in as it withdraws. Where competition is not possible (as in sugarcane processing, for example), strict regulation of the monopoly will be necessary; if emerging monopolies are not adequately regulated the move toward privatisation will be discredited and the reform process will suffer.

**Trade Policy**

Rather than striving for self-sufficiency in industrial output Pakistan should direct its resources to their most efficient uses across sectors and exploit agriculture's comparative advantage to finance import requirements. Trade policy reform, which must be completed rapidly, should be structured so that products in which Pakistan has a comparative advantage are not penalised and products in which Pakistan lacks a comparative advantage are afforded no protection. In particular, the government should consider removing taxes on cotton exports, duties on sugar imports, and quantitative restrictions on both. Any loss of revenue could be offset by eliminating the wheat subsidy. In addition, the sectoral terms of trade could be improved for agriculture by reducing industrial protection. Experience in other East Asian economies shows the considerable benefits of a much smaller bias against agriculture in trade policies. Ideally, the current system of high and heterogeneous duties and barriers should be replaced with a uniform duty [World Bank 1992a)].

**Fiscal Policy**

Tax reform will need to ensure that all sectors are treated equally in terms of the tax burden. All special agricultural tax exemptions should be eliminated, especially once intersectoral transfers have taken place following the removal of distortions. The system of agricultural income and wealth taxation that has been proposed should be put in place as soon as possible and extended to meet the goals of equity and efficiency. The tax base should be periodically reassessed to ensure that the poor are not taxed too heavily and that taxes do not create intersectoral distortions and inequity.

**Changing Policies Affecting Input Markets**

The government should consider reducing its level of intervention in agricultural input markets, as it has begun to do in moving toward privatising urea production and distribution. Additional efficiency could be achieved by making the National Fertiliser Corporation more commercially oriented or by divesting it to the private sector.

Privatising the import of phosphatic fertiliser should be accelerated. The ability of the private sector to take over imports effectively will depend on it being able to compete fairly with the government during the transition. Given the strategic importance of fertiliser the government should strive to ensure that private firms are given the same facilities as the public sector. A smooth transition to a market dominated by the private sector may also require the elimination of public sector imports; policy reform in other sectors will likely include removal of price controls on natural gas and fertiliser, which is likely to lead to price increases that reflect full economic pricing.

Government involvement in the marketing of improved (certified) seed is unwarranted and should be ended. Government seed corporations should be run along commercial lines and privatised as soon as possible. In the meantime private firms should be given the same facilities as public sector companies. A legitimate role for government does exist in providing quality control and certification of seed; this role needs to be fully funded and strengthened as use of improved seed increases.

The irrigation system should be decentralised. At the distributory level downstream operations and maintenance should be handled by water user associations, which should provide timely and efficient water delivery. Upstream, at canal command (areas covered by main and branch canals), operations should be handled by commercially oriented public utilities that enter into explicit contractual obligations with the user associations. At the provincial level autonomous water authorities should be responsible for major provincial storage, link canals, off-farm and provincial drainage, and flood control and management.

Irrigation charges can be raised to reflect the cost of service provision, the quality of service provided, and the cost of competing alternatives. Disputes between the different groups using the irrigation system could be resolved by powerful, politically unbiased regulatory authorities. A legal and institutional framework for the market exchange of water rights could also be established. Although off-farm drainage (a true public good) must continue to be the responsibility of the government its costs can be recovered from farmers.

A careful study of the costs and benefits of land reform should be initiated. Some immediate measures, such as elimination of low machinery prices and improved access to credit (the lack of which makes it difficult for small farmers to expand their holdings), should be adopted to correct land market distortions. Removing these distortions would increase opportunities for farming and for wage labour on employment-intensive farms. The land title process should be modernised and streamlined through the establishment of a system of permanent title deeds to land. Security of tenure should be ensured without creating new disincentives to rent out land. These measures would likely facilitate long-term investment, especially investment in natural resource management.

Directed credit in any form should be eliminated. Groups that have difficulty gaining access to credit could be assisted by a scheme under which the initial set-up costs of extending credit could be underwritten by the government in order to reduce transaction costs. Recurrent credit subsidies should not be provided, however. Credit policies should be set with a view to ensuring high loan repayment rates and sustaining lending activities', special credit arrangements should not interfere with liberalisation of interest rates. The government should also consider developing and institutional and legal framework that would allow efficient lending to agriculture, unhindered by highly restrictive collateral requirements and seasonal credit regulations.

## **RECOGNISING THE ROLE OF THE PUBLIC SECTOR**

Most subsectors of Pakistani agriculture have entered a post-green revolution stage of development that requires new strategies to enhance input efficiency and to maintain and improve the quality of the resource base. By most measures of productivity Pakistan's institutions have not evolved to meet this challenge. Reform in public spending is critical to achieving these institutional changes. The government's new role will require institutional changes but no independent institutional reform should be needed. Some institutions (such as output marketing agencies) will have to be phased out as the reform programme progresses, however.

### **Research**

Support for research should continue, but expenditure needs to be restructured so that salaries do not absorb most of the available funds. Research institutions should be made more autonomous, salary restrictions should be lifted, and other funding sources should be mobilised. Training programmes for research professionals should help them understand the problems of farming systems, including irrigated agriculture, and publicly funded research should focus on growth-enhancing public goods, environmental impact, poverty reduction, and the transfer of technology.

Greater importance should be attached to research on cropping systems. Wheat fields, for example, are a breeding ground for pests that attack the cotton crop, calling into question the viability of the cotton-wheat system. Improvements in the major cropping systems to overcome such problems as delayed planting and depletion of soil organic matters are needed. Adaptive research (which should be a part of the extension service) should provide site-and season-specific recommendations and information to individual farmers.

Both productivity and sustainability can be enhanced by improvements in crop and resource-management research. Greater attention to local conditions can be achieved by defining major agroecological zones and subsystems within these zones, rather than within political boundaries. Such zones could then serve as the basis for organising crop and resource-management research aimed at monitoring changes in the resource base at the farm level.

Universities should continue to play a key role in providing manpower training for research, and producers. NGOs, and other participants from the private sector should be encouraged to take part in setting research priorities. Research that can be profitably financed by the private sector need not be underwritten by the limited public budget, although joint public-private funding of research is desirable. Private and public sector research financing could, where possible, be provided on a

competitive basis, so that funding to institutions would be tied to performance. Monitoring of research needs to improve—albeit under a system that allows for greater decentralisation—and coordination among both national and provincial research institutions improved so that unnecessary duplication is avoided.

### **Extension Services**

Some reduction in the size of the extension service may be necessary, particularly among the cadre of extension agents at the Union Council level, and continued public funding should be contingent on improved organisational capability. Extension already being undertaken by private sector companies and NGOs, such as the provision of advisory services by adaptive research institutions to medium and large farmers on a fee basis, should be encouraged.

Operational management of extension services needs to be decentralised, farmers need to be encouraged to play a larger role in controlling and evaluating these services, and services need to be geared to the problems of all farming systems, including livestock, forestry, and water management, not just those of major crops. A more diversified approach to extension that responds to the needs of farmers, including women farmers, and makes use of all sources of extension services, including the private sector, is desirable.

The “contact farmer” approach, which makes extensive use of audio-visual teaching methods, extensive on-farm demonstrations, and farm fairs, should be reconsidered. A group approach to message delivery would complement groups in other areas, notably in water and credit provision.

### **Education**

Greater investment in formal schooling will be critical in raising technical efficiency and productivity. In the short run functional education of farmers can be improved through adult literacy programmes and training by government field workers. Such training will also prepare farmers for the increased organisational burden that will be placed on them as a result of the formation of water user associations and other user groups. In the long run more emphasis on primary education will help increase human capital in rural areas.

### **Rural Infrastructure Provision**

The government's role in providing rural infrastructure needs to be strengthened. The increased revenue from tax reform and savings from the rationalisation of public expenditures on agriculture could be used to finance farm-to-village road construction, which would improve the distribution of inputs and the marketability of outputs, especially high-value (often perishable) foods. (Also mention ports?)

## **Poverty Alleviation**

Swift alleviation of rural poverty depends on rapid agricultural growth, which in turn depends on government policy; price reforms that improve the incentives facing farmers are especially urgent. But to achieve growth additional reforms are required to maximise poverty reduction. In a labour-abundant economy such as Pakistan, subsidies on capital (tractors, combine harvesters, and so on) are inappropriate because they distort factor markets and lead to labour displacement. Incentives to mechanise that displace labour without increasing output significantly should be removed.

Provinces should be encouraged to better target their development spending toward the rural poor by giving districts with the largest concentration of poor people higher priority in the allocation of public investment (such as rural roads and health and education facilities).

Rural credit policy should ensure that viable small-scale rural investment opportunities can be efficiently financed. Directed credit, quotas, and interest rate ceilings should be terminated, and the private sector should be relied on for credit provision wherever possible. The government should also consider removing land market distortions, which impair efficiency as well as restrict access to land by the poor.

Participatory community-based organisation also offer great promise in terms of reducing poverty. These organisation could be integrated with groups that provide rural credit. Institution building in rural communities will complement the increased reliance on user groups in water and extension services.

## **Environmental Protection**

To protect the environment the government must place more emphasis on natural resource management problems in agriculture. The lessons of successful resource management suggest that policy interventions should be based on three principles:

- Adjusting prices for scarce natural resources to provide appropriate incentives for conservation.
- Identifying regulatory mechanism that could be effective in addressing market failures, bearing in mind the poor record of existing regulatory agencies.
- Restructuring public expenditures to focus on natural resource management priorities.

The government needs to phase out policies, such as the under pricing of irrigation water, that give private agents incentives to use natural resources suboptimally. Factor price distortions that lead to labour displacement and increased environmental stress (farming on marginal land or rural-urban migration, for

example) should also be removed. Elimination of subsidies—such as the sapling subsidy, the rationale for which no longer exists—would release resources for natural resource management projects.

Environment and natural resource management problems are often associated with market failure and require public regulation. Increased pesticide use has created growing resistance among pests and destroyed natural predators. One approach would be to adopt integrated pest management techniques that would be more effective against pest problems as well as more environmentally friendly. An effective institutional mechanism for transmitting knowledge about integrated pest management is essential.

Increasing the regulatory powers of government agencies will be counterproductive if they continue to protect the politically powerful, seek rents for themselves, and enforce laws selectively. It may, therefore, be wise to include NGOs in Pakistan's environmental strategy and to support them wherever appropriate and according to their comparative advantage. NGOs have had considerable success in increasing farmers' awareness of environmental issues, have played an important role in formulating environmental policy, and have recorded some notable victories in the civil courts.

Lack of property rights and institutions to manage common property resources can result in on-site damage and create negative externalities. Successful watershed management projects need to be extended and community management institutions established to address common property resource management problems. Government intervention should be limited to providing incentives for the adoption of sustainable resource management techniques, such as new technologies that enhance the physical status of common property resources.

### **CORE ELEMENTS OF THE STRATEGY**

Although all components of this strategy must be implemented to ensure sustainability certain elements should be implemented first.

#### **Allowing the Market to Operate**

Policy reforms that support the ongoing structural adjustment should be given top priority. These reforms include all actions that involve government withdrawal from activities better suited to the private sector. Market forces should be allowed to determine agriculture output and input prices. Trade and tariff policy reform will improve the incentives facing the agricultural sector, ending distortionary policy-induced intersectoral transfers out of agriculture. To make the tax system equitable and nondistortionary agriculture must contribute its fair share to government revenue, a change that will also improve Pakistan's internal balance and increase stabilisation. These reforms will not only help adjustment (including stabilisation) but will improve agricultural efficiency and growth as well.



### **Addressing the Irrigation Crisis**

Irrigation is the life-blood of agriculture in Pakistan. To address the crisis in irrigation management market-determined incentives (that is, water prices) must be allowed to determine resource allocation within the irrigation system. The scope for raising water charges is considerable and reform here can be implemented quickly. In the longer term decentralisation of water provision is essential and preparatory steps should be taken immediately. The government will also have to establish enforceable property rights to water and legalise water markets, thereby making the opportunity cost of water transparent and encouraging more efficient use of water. Administering institutions will have to be restructured along commercial lines.

The best option is to develop autonomous, commercially oriented public utilities on a canal command basis, ensuring cost recovery of all current operations and maintenance and future capital expenditure. Since the government cannot collect all costs of operations and maintenance from farmers, farmers must become responsible for operations and maintenance through water user associations, which will better maintain the system.

### **Reforming Extension**

Given the potential of increasing productivity of most crops by 30–50 percent effective diffusion of existing technology and best farming practices is paramount. Reform of extension is critical in four key areas.

- Establishing closer links with research institutions.
- Reducing the number of front-line extension workers and replacing them with fewer, better-trained workers who are more responsive to the needs of farming systems.
- Providing consulting services by adaptive research institutes to better-off farmers on a cost-sharing basis.
- Using mass media and other group approaches to communicate basic messages about available technology and better farming systems.

### **Correcting Distortions in the Land Market**

Full-fledged land reform is difficult to enact and can be considered only after a comprehensive study of costs and benefits. Some important measures can be implemented immediately, however. Foremost is providing security of tenure to many farmers, especially tenants-at-will, thereby improving responsiveness to incentives and creating better incentives for long-term investments. Property rights can also be reinforced by improving and streamlining land registration by establishing a system of permanent title deeds. Finally, the government needs to consider eliminating artificial incentives to large holders, such as low machinery prices and unequal access to credit.

## Comments

At the outset, I would like to compliment Mr Rashid Faruqee for a pithy and concise paper highlighting issues for the development of Pakistan's agriculture in the next century. Theme of the paper is greater reliance on the markets and private sector, whether it is the marketing of output or provision of inputs. This is also the Panacea prescribed by the donors to the developing countries. Few students of economics would question merits of relying on markets for providing relevant signals for resource allocation, etc., provided these are well organised and fulfil the text book conditions of perfect competition. However, when one reviews the landscape and realities on the ground in the developing countries one is struck with the fragmentation and imperfections characterising the markets. Repeated instances of market failures stare the students of developing countries, raising serious doubts about the efficacy of markets and private sector. It is with this background that I venture to put across some what different view point.

### Price Policy

The author argues for removing all price supports and controls and determining output prices by markets, and stabilising resulting price fluctuations by promoting on farm storage, private sector storage and futures trading.

The output prices are already being determined by the market forces. The Government does announce the minimum support prices to provide a floor to the market during the harvest period when due to seasonal glut market prices tend to fall to unremunerative levels. A great majority of the farmers are forced to sell their produce immediately in the harvest season as they neither have adequate storage facilities nor financial capacity to hold on to their produce in the hope of better price later in the season. Judiciously fixed and effectively implemented support prices are in the overall interest of the economy for reasons of food security, arresting undue resource transfers out of agriculture and agricultural development. The system is in vogue in one form or the other even in the developed countries where physical and institutional infrastructure supporting agriculture are of much higher quality. The support prices in Pakistan have been seldom higher than the corresponding international prices, thus providing no protection to agriculture.

To rely on futures market to stabilise commodity prices for farmers in Pakistan would be expecting too much as this stage, when these neither exist nor their functioning is well understood even by the of sophisticated and educated lot.

The author has also argued to remove protection to sugarcane by eliminating its support price and sugar import restrictions. The support prices of sugarcane have been seldom higher than its import parity prices as Pakistan has been importing sugar till recently. The current situation stems from the transition from being importer to exporter, which has coincided with the crash in international prices.

### **Trade Policy**

The author has rightly argued for restructuring trade policy so as not to penalise the products in which Pakistan has a comparative advantage. Endorsing author's view point for providing level playing field for various sectors, I would like to point out the need for having long and medium term perspective while framing future course of action. Trade policy, providing an overall framework for exports/imports, should not be tinkered with frequently. Export market cannot be developed on the basis of residual surplus and with dubious quality of the produce. There is an urgent need to upgrade the economic and institutional infrastructure to improve the processing and marketing efficiency. In a number of situations comparative advantage which the country enjoyed in production was lost due to inefficiencies/weaknesses in processing, handling and transportation.

### **Fiscal Policy**

The proposal that all sectors be treated equally and share the tax burden is endorsed. This, however, also require that all sectors be treated fairly in the provision of infrastructural and support services. Similarly, in calculating farm incomes for estimating income tax due allowance for inputs expenditure, as in other sectors, should be allowed.

### **Input Markets**

Regarding the intervention in the input markets, the author's proposal to provide the same facilities to private sector as being allowed to public sector merits serious consideration. However, public sector should not be totally withdrawn from the marketing of seed, fertiliser, etc. The presence of public sector, given past experience, is essential to act as a bull-wark against the exploitation of farmers by private sector and assure supplies of inputs and stabilise market which the private sector is reluctant to do. There is a need for increasing the role of private sector but this does not necessarily imply supplanting public sector which may have done a commendable job. In the irrigation sector proposal of decentralisation is worth considering. The author has argued for establishing autonomies water authorities at the provincial levels. Water is the life blood to Pakistan's agriculture. Institutional changes in this vital sector need to be carefully designed keeping in view the ground realities.

In his discussion on land reforms, the author has emphasised the need for eliminating low machinery prices and improving access to credit to correct land market distortions. The author's emphasis on providing security of tenure to the tenants is timely. However, I wonder whether farm machinery prices in Pakistan are really low in view of the heavy taxation. Farm productivity cannot be increased without selective mechanisation of operations. Increasing cropping intensity, and saving of harvest/post harvest losses, important for increasing production and productivity and alleviating rural poverty, cannot be achieved without the use of farm machines. Mechanisation not only reduces drudgery of labour but also enhances employment opportunities in countryside. There is tremendous scope for increasing production and productivity through strengthening agricultural research, and disseminating its results among the farming population. The author's emphasis on making research institutions more autonomous merits serious attention of the powers that be. However, it is easier said than done as the bureaucracy is seldom willing to allow much needed administrative and financial autonomy to the research institutions. The author has rightly warned for protecting environment. Indiscriminate use of pesticides, characterising agriculture scene, can be partly blamed on the private sector who has tried to exploit the farmers' ignorance in this context.

I wish the author, while emphasising the role of market forces and private sector, had not ignored the recent lessons/experiences of such reforms. Market liberalisation and phasing out of subsidies has increased the input prices and cost of production of the farmers while output prices are crashing around them. To address the emerging problems, it is imperative to develop the indigenous institutional capacity to monitor the situation and provide much needed analysis for policy guidelines.

Agricultural Prices Commission,  
Islamabad.

**Abdul Salam**