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Enabling policies

for developing smallholder agriculture in Pakistan

ACIAR MONOGRAPH **207**

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for developing smallholder agriculture in Pakistan

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Contents

List of figures

List of tables

List of boxes

Foreword

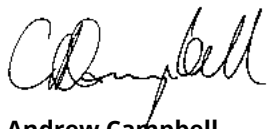
A key mandate of the Australian Centre for International Agriculture Research (ACIAR) is increasing agricultural productivity, sustainability and resilience through technological innovation. As part of the Australian Government's overseas aid program, ACIAR supports collaborative agricultural research throughout the Indo-Pacific region. One of ACIAR's key strategic objectives in doing so is to improve food security and reduce poverty among smallholder farmers and rural communities throughout the region.

ACIAR has collaborated with Pakistan since 1984. Recent projects focused on Pakistan's key fruit crops (mangoes and citrus), livestock (smallholder dairy), agricultural policy and agricultural water management. There are about eight million smallholder farms in Pakistan, and they remain the backbone of Pakistan's economic and social fabric. The project that has given rise to this monograph focused on the policy changes necessary to generate higher incomes for smallholder farmers, and more rapid growth in the rural communities in which they live. It complements other ACIAR projects that focus on particular industry segments and forms of technological change, by exploring the enabling policy framework to drive such technological innovations.

The report highlights major initiatives in many areas to transform smallholder agriculture in Pakistan. These include improved access to markets and increased reliance on market processes, as well as greater innovation on the ground through demand-based extension services and R&D. Better access to formal credit for smallholder farmers is also necessary, together with stronger development of rural producer organisations. Perhaps above all, empowerment of women is critical, to give them greater access to resources and decision-making.

This ACIAR project reflects a strong collaboration between Australian researchers and senior officials and other experts in Pakistan. ACIAR is grateful for the commitment to this work both from senior officials in the Planning Commission and the Pakistan Agricultural Research Council and from the agricultural and livestock departments in both Punjab and Sindh. There was also an important contribution from the university sector in Pakistan. The authors conclude that a coordinated national framework of enabling policies for smallholder farmers could generate a sharp increase in their output and to stimulate overall growth and reduce poverty in Pakistan.

The issues canvassed in this monograph are widespread throughout the developing world. Families own and operate about 90 percent of the world's 570 million farms1[1], most of which are small. Many of these smallholder family farmers are poor and food insecure and have limited access to markets and services. The challenges facing Pakistan are replicated in many countries, so the findings of this monograph should resonate beyond Pakistan.



Andrew Campbell
Chief Executive Office, ACIAR

1 www.fao.org/family-farming/themes/small-family-farmers/en/

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It is appropriate to record our thanks to our 10 co-authors, whose continued efforts made this monograph possible. The involvement and support from the agriculture and livestock departments in both Punjab and Sindh has been vital and much appreciated. At the national level, we record special thanks to Dr Muhammad Azeem Khan, now Chairman of the Pakistan Agricultural Research Council, for his intellectual leadership and commitment in spite of many other duties.

Associate Professor Kashif Rashid, COMSATS University Islamabad, established and led the team which undertook the field study to identify the views of farmers, officials and others on the ground. This field study played a major role in shaping our direction, and we thank Professor Rashid and his colleagues. Finally, after all the discussions were held and the inputs provided, it fell to Professor Bhajan Grewal and Mr Jim Lang to do the main analysis and draft the manuscript. Their major contributions are gratefully acknowledged.

Over the life of the project, membership of the project team changed as the careers of individuals evolved. We would like to express our thanks to Mr Khalid Mahmud Chaudari, former Deputy Secretary, Planning, Department of Livestock and Dairy Development, Punjab and Dr Shakeel Ahmed Khan, former national Food Security Commissioner. We have also had the benefit of the expertise of many others in Pakistan, and would particularly like to thank Professor Tehmina Mangan, Sindh Agriculture University, and Dr Babar Shahbaz and Dr Khakid Bashir, of the University of Agriculture, Faisalabad, for their most valuable inputs. Valuable contributions were also received about the Indian experience from Dr B.S. Chandel of the National Dairy Research Institute, Karnal, India.

We also express our thanks to the many individuals in Australia who have freely shared their knowledge of Australian conditions and practices with visiting Pakistani officials, often by showing them operating facilities. Many others have provided advice or expertise to the project team, and here we would like to thank especially Dr Alistair Watson (formerly of the University of Melbourne), Dr Sosheel Godfrey (Charles Sturt University) and Dr David McGill (University of Melbourne). Within the Victoria Institute of Strategic Economic Studies, Mrs Margarita Kumnick made a major contribution to information gathering and final preparation of the manuscript. Ms Anne Moorhead provided valuable editorial expertise, for which we are also grateful.

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Executive summary

For several decades Pakistan was caught up in the global geopolitics of terrorism and wracked by internal dissension. This led to slow growth in per capita incomes, little change in the structure of the economy and limited social reform. Between 1990 and 2015 the global economy experienced massive change—driven by globalisation, new technologies and the rise of many developing countries—but to a significant degree Pakistan was isolated from these trends. As a result, over this period the structure of Pakistan's economy barely changed and the transformation of global agriculture has had little impact within Pakistan.

In recent years, however, many things have begun to change within Pakistan and the implementation of new policies has begun. At both the national level and in Punjab and Sindh, the two provinces studied for this publication, important new initiatives for agriculture are being put in train. If these policy initiatives can be continued and extended, an era of significant increases in living standards and real social reform in Pakistan may be at hand.

In our view, at the heart of any new era of economic growth and social progress will be the renewal of smallholder agriculture. Pakistan currently has over eight million private farms, on which over half the population of the country depends for income. About 90% of these farms are small farms (less than 5 hectares), and in the livestock sector there are many landless farmers. A major failing of agricultural policy in Pakistan in recent decades has been the exclusive focus—in policy, financial support and even data collection—on the large-scale crop sector. This needs to change.

Effective policies are needed to transform smallholder agriculture, and the rural economy and infrastructure in which it operates, and to release the power of the women who play a key role on small farms. Greatly increased output from smallholder farms would not only provide higher incomes for many of the poorest in Pakistan, but would also flow on to higher spending on goods and services in villages and towns, and provide off-farm surpluses to stimulate small-scale manufacturing.

This report seeks to analyse the challenges that smallholder agriculture faces in Pakistan, and to identify, having regard to the experience of other countries, the policies needed to transform the sector. We conclude that major initiatives for transforming smallholder agriculture in Pakistan are required in five areas:

- improved access to markets, domestic and international, and increased reliance on market processes
- greater innovation on the ground in Pakistani agriculture, particularly more demand-based extension services for smallholders and increased R&D focused on their actual needs
- much better access to formal credit for smallholder farmers, through institutional and technological changes that facilitate lending to smallholders
- more effective development of various forms of rural producer organisations, to provide a critical mass of smallholders for innovation, credit access, purchasing, access to downstream facilities such as processing plants, and access to markets
- real enhancement of the role of women, who already play a major role in smallholder farming, but are neither empowered nor trained sufficiently to play their roles effectively.

These policies need to be supported, at the provincial level, by territorial initiatives to support market linkages at the village and town level.

For the policies to be effective, they must be set in a coherent strategic framework, be sustained over the long term, and be undertaken cooperatively by the national government and provincial governments, having regard to their specific areas of responsibility. In the medium term, Pakistan has strong potential to become a substantial exporter—of dairy, citrus and mango products, for instance—to the rapidly growing countries within Pakistan's region. This should be recognised and be an underlying goal of policy.

Given the current low productivity of smallholder agriculture in Pakistan, comprehensive, sustained and effective policies could increase smallholder output 30–40% by 2027–28, relative to what would otherwise be the case. This would be consistent with what has happened in other countries. For example, between 1991 and 2016 agricultural productivity in South Asia excluding Pakistan increased by about 150% relative to that in Pakistan.

Such a boost in smallholder output would set in train dynamic feedback processes such as have driven rapid growth in other countries in recent decades. Given a 30–40% increase in smallholder output, these feedback processes could lead to an increase in the national growth rate by up to one percentage point (e.g. from 5% to 6% per annum) over the decade to 2027–28. It would also be associated with a major reduction in rural poverty.

Thus we submit that a transformation of the smallholder sector is not only an imperative for Pakistan in current circumstances, but that it could be pivotal in setting a new long-term economic and social trajectory for the country.

1 Smallholder agriculture in the economic and social development of Pakistan

For several decades Pakistan was caught up in the global geopolitics of terrorism and wracked by internal dissension. This led to slow growth in per capita incomes, little change in the structure of the economy and limited social reform. Between 1990 and 2015 the global economy experienced massive change—driven by globalisation, new technologies and the rise of many developing countries—but to a significant degree Pakistan was isolated from these trends. In recent years, however, many things have begun to change in Pakistan and the implementation of new policies has begun. These are in line with the emphasis on rural transformation in the 12th Five Year Plan (2018–2023) from the Planning Commission. An era of significant increases in living standards and real social reform may be at hand.

In our view, at the heart of such a new era of economic growth and social progress will be the renewal of smallholder agriculture, and of the rural economy and infrastructure in which it operates, together with releasing the power of the women who play a key role on small farms. Pakistan has over eight million private farms, on which over half the population of the country depends for income. It is, for example, one of the largest milk producers in the world, in spite of achieving low milk yields per animal. Increased output from smallholder farms would not only provide higher incomes for many of the poorest in Pakistan, but also flow on to higher spending on goods and services in villages and towns, and provide off-farm surpluses to stimulate small-scale manufacturing. Transforming smallholder agriculture in an inclusive way would set in train dynamic, self-reinforcing processes reaching across the whole economy and driving more rapid growth and social reform.

Pakistan is not alone in the challenges it faces after several decades of relative inaction. Many other countries have also been unable to participate fully in the structural and technological changes of the past quarter century, nor to come to terms with the transformation of global agriculture over that time. In this chapter we outline briefly these two global trends, with a view to placing the challenges that Pakistan faces, and the analyses and recommendations provided in this monograph, in broader context. The chapter concludes by foreshadowing the policies and strategies to transform smallholder agriculture that are the central theme of this monograph, and discussing the benefits that might accrue from them.

1.1 Shifting patterns of economic development

1.1.1 The industrialisation model

For a century or more, the standard model of economic development has been one in which structural transformation, towards increasing industrialisation, drives growth in GDP per capita. This involves a shift of labour out of low-productivity agriculture into higher productivity industry, and more recently into services. The growth in incomes from the initial expansion of industry increases demand in all three sectors (industry, agriculture and services), and productivity in agriculture and services also starts to rise. As investment in new technologies becomes possible, productivity growth continues in these three sectors, with rising real incomes per head. The result is a rapid shift in the structure of value added away from agriculture to industry, even though agricultural output continues to increase, and an even more rapid shift in employment from agriculture to industry and services.

Most of the current high-income countries (such as the UK, Germany and the USA) exhibited this pattern over a century or more until about 1960, followed a little later in the 20th century by Japan. After 1960 this development process was apparent in the countries of East Asia, such as Korea and Taiwan, and most strikingly in China after its 'opening to the world' in 1978. Figure 1.1 illustrates the pattern of China's economic development over 1978–2016, in terms of the share of the three industry sectors in total value added (left hand panel) and in total employment (right hand panel) over this period.

In 1978, agriculture provided 41.8% of China's GDP, with industry and services both less than 30%, and 70% of employment. Over the past three decades, the structural transformation has been dramatic. Agriculture's share of GDP has fallen by 35 percentage points, to 7% by 2016, with 20 points going to industry (up from 29.4% to 49.5%) and 15 points going to services (up from 28.8% to 43.5%). The share of employment in agriculture has fallen by 43 percentage points over this time (from 70.5% to 27.7%), while the share of industry in employment has risen by 11.5 points and that of services by 31 points.

China's remarkable structural transformation was driven above all by its emergence as the 'factory for the world', and in this regard it is a classic example of the standard model. However, several other features are notable, and foreshadow changes in the development model. First, over the full period 1978–2016 the service sector virtually kept pace with industry in terms of value added, with annual growth rates of 10.7% and 11.0% respectively. Thus, China is in some ways as much a story of services growth as of industrialisation. Indeed, in terms of employment growth, services far outpaced industry (Figure 1.1), even though productivity growth in services was very strong (5.7% per annum over the full period).

Second, while agriculture's share of GDP and employment fell sharply, real value added in the sector rose at 4.3% per annum over 1978–2016 and, with employment in agriculture falling, productivity in the sector rose by 5.1% per annum. This in itself is a remarkable story. Even though agriculture's share of GDP fell to

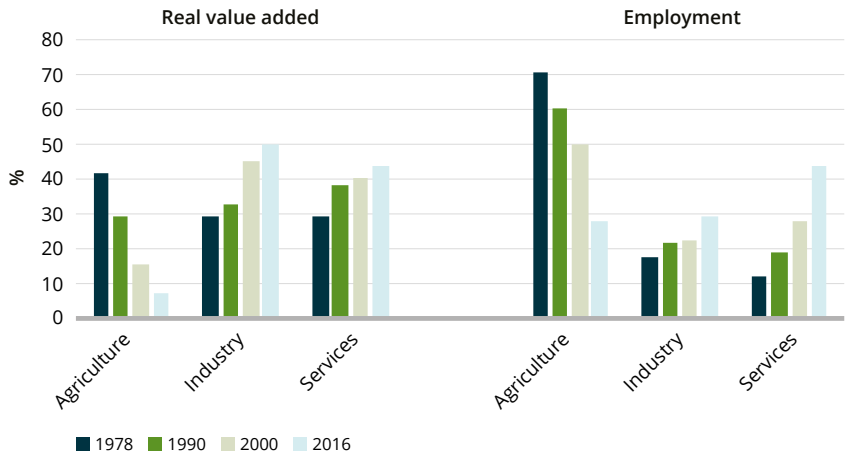


Figure 1.1 **Share of real value added and employment, by industry, in China, 1978, 1990, 2000 and 2016.**
Source: National Bureau of Statistics of China (2017).

7% by 2016 and its employment share to less than 30%, these outcomes mainly reflected the burgeoning growth of other sectors. In China, agriculture itself performed very strongly.

Closer examination of China's data by industry over this period indicates that there were three distinct periods in China's post-1978 development. In the initial period, 1978–90, there was reasonably balanced growth, with significant increases in real value added and employment in all three sectors. The 1990s in China saw a sharp shift to industry and an acceleration of structural change. Real value added in industry more than trebled over the decade, rising 13.5% per annum, and this was a decade of sharp structural change: industry's share of real GDP rose from 32.7% to 44.8% over the decade, while agriculture's share fell from 29.1% to 16.3%. Even so, real value added in agriculture rose by 3.8% per annum and productivity by 4.6%. Over 2000–15 a new and striking pattern became established. Both industry and services grew strongly, and value added growth in agriculture remained solid, at 3.7% per annum, but now with high productivity growth (7.2%) as employment in agriculture fell by 40% over the period. This is what is often described as fully-fledged structural transformation.

1.1.2 Beyond the industrialisation model

China's rapid development has illustrated some new features of the development model, but has itself contributed to the breakdown of the standard model for many low and lower middle income developing countries. Manufacturing has become intensely competitive on a global basis, as a new wave of developing countries in addition to China, such as India and the economies of Eastern Europe, entered export markets. Traded services have also become highly competitive. Both these trends have limited the options for many developing countries to pursue exports of manufactures and services, and have made imports more competitive in their own internal markets.

We start by examining the evolution of the structure of Pakistan's economy in the context of the discussion above and of its regional neighbours. Between 1960 and 1990, Pakistan and the rest of South Asia broadly followed the standard development model, albeit at a moderate pace. As shown in Table 1.1, over this period the share of agriculture in real GDP in Pakistan fell by 20.8 percentage points,

Table 1.1 Share of real value added by industry, Pakistan and South Asia (excluding Pakistan), 1960–2016.

	1960 (%)	1990 (%)	2016 (%)	Change (percentage points) over period	
				1960–90	1990–2016
Pakistan					
Agriculture	49.7	28.9	22.0	–20.8	–6.9
Industry	9.2	18.7	20.5	9.6	1.8
Services	41.2	52.4	57.5	11.2	5.1
South Asia (excluding Pakistan)					
Agriculture	57.7	36.8	15.2	–20.9	–21.6
Industry	21.5	30.5	31.1	9.0	0.6
Services	21.7	33.6	53.7	11.9	20.1

Source: World Bank (2018) and authors' calculations.

from 49.7% to 28.9%. In the rest of South Asia (dominated by India), the fall in agriculture's share was very similar, although the role of agriculture remained higher. This decline led to a rise in the share of both industry, which more than doubled its share in Pakistan, from 9.2% to 18.7%, and the services sector. These changes were in line with those in the rest of South Asia, but one distinctive feature of Pakistan was the high share of services, and a lower share of industry, as early as 1960.

If this pattern had continued after 1990 through to 2016, both Pakistan and the rest of South Asia would have achieved fundamental structural change, but this proved not to be the case (Table 1.1 and Figure 1.2). Over 1990–2016 the rise in the industrial share of GDP was minimal (1.8 percentage points in Pakistan and 0.6 points in South Asia excluding Pakistan). In Pakistan, there was a much slower decline in the agricultural share (by 6.9 percentage points to 22.0%) and most of this share went

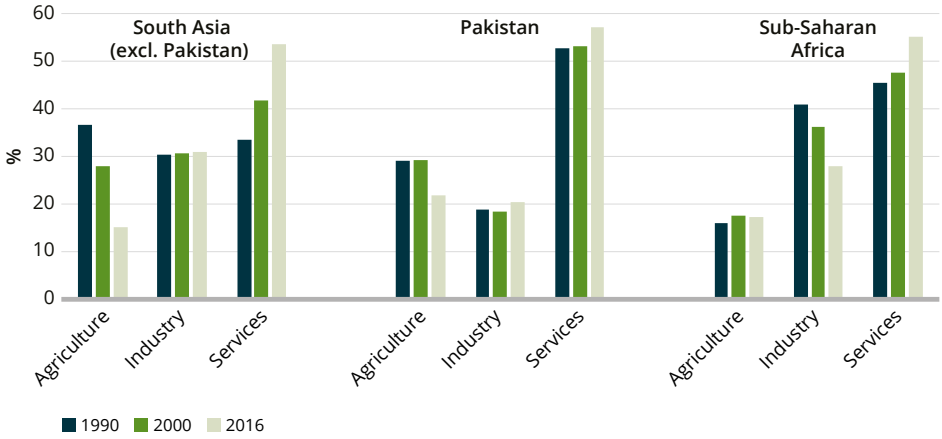


Figure 1.2 Share of real value added, by industry, in South Asia (excluding Pakistan), Pakistan and Sub-Saharan Africa, 1990, 2000 and 2016 (%).
Source: World Bank (2018) and authors' calculations.

to services (up 5.1 points to 57.5%). The stall in the rise of industry is also evident in South Asia (excluding Pakistan), and structural change was associated with a more pronounced shift from agriculture to services—the share of agriculture falling by 21.6 percentage points and that of services rising by 20.1 points. By 2016 in both cases, the majority of GDP originated in the services sector, and the service sector share was much higher than in China. But the main lesson is that after 1990, structural change within Pakistan virtually stopped, even relative to the slow change taking place in the rest of South Asia.

In Sub-Saharan Africa, the dynamics have been quite different: there has been no significant fall in the share of agriculture, with real GDP shifting from industry to services. By contrast with the standard development model, the only real structural change here has been the growth of services at the expense of industry, with the share of industry in total GDP falling significantly.

Figure 1.3 shows the share of employment for three more recent periods—2000, 2010 and 2016—and these inevitably reflect these sectoral trends in real GDP, as well as changes in productivity and the higher overall rates of growth in the balance of South Asia. In South Asia (excluding Pakistan), structural change in employment is more apparent than in value added, with a 20 percentage point fall in the agricultural share being distributed across both industry and services. In Pakistan, structural change is again more modest, with only a 6 percentage point fall in agriculture. Even so, in both components of South Asia, by 2016 only a little over one-fifth of employment is in industry and just over 30% in services, with agriculture still providing over 40% of employment. In Sub-Saharan Africa the employment transformation is even more subdued, with the industry share stuck at about 11% and the services share rising only slowly, reaching 34% in 2016. The agricultural share of employment remains close to 60%.

But the most striking figures are for labour productivity (Table 1.2 and Figure 1.4). In 1991 Pakistan had much higher overall labour productivity than the rest of South Asia, by about 80% in terms of GDP measured in constant US dollars per employee. This was founded on much higher productivity in both agriculture and services, if not industry, in 1991 (Figure 1.4b). But productivity growth has been much slower in Pakistan in each of the three industry sectors over the past 25 years than in

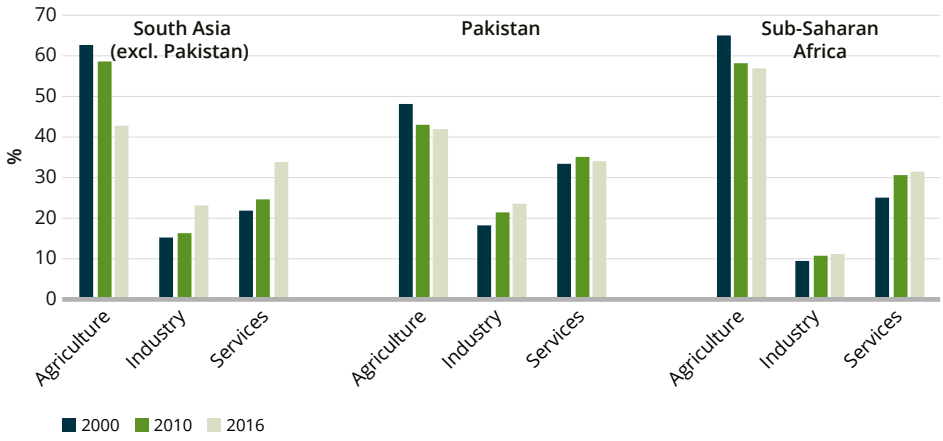


Figure 1.3 Share of employment, by industry, in South Asia (excluding Pakistan), Pakistan and Sub-Saharan Africa, 2000, 2010 and 2016 (%).
Source: ILO (2018) and authors' calculations.

Table 1.2 Labour productivity by industry and total, in Pakistan and South Asia (excluding Pakistan), 1991–2016 (constant 2010 US$ and %).

	1991 (US$)	2016 (US$)	Average annual change 1990–2016 (% pa)
Pakistan			
Agriculture	869	1,102	1.0
Industry	1,349	1,844	1.3
Services	2,293	3,568	1.8
Total	**1,430**	**2,119**	**1.6**
South Asia (excluding Pakistan)			
Agriculture	441	1,040	3.5
Industry	1,579	3,984	3.8
Services	1,261	4,682	5.4
Total	**791**	**2,953**	**5.5**

Source: World Bank (2018), ILO (2018) and authors' calculations.

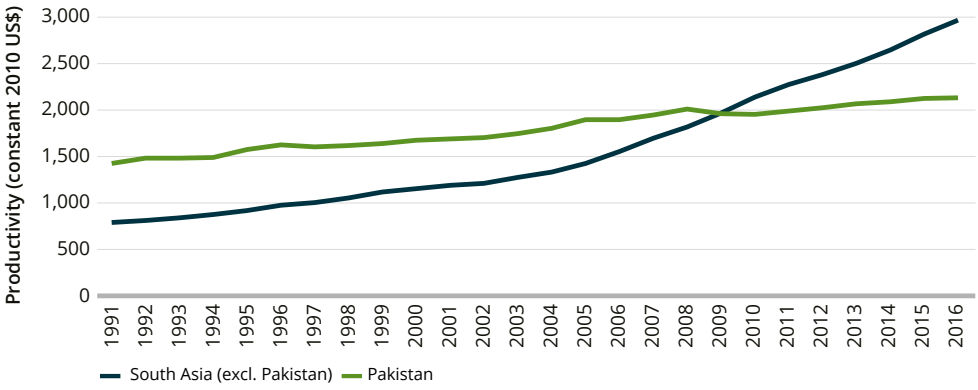
the rest of South Asia. As a result, total labour productivity rose by only 1.6% per annum in Pakistan over 1991–2016, in comparison with 5.5% per annum in the rest of South Asia. As shown in Figure 1.4a, the result was that labour productivity in South Asia (excluding Pakistan), by this measure, went from 80% below that in Pakistan in 1991 to nearly 40% higher by 2016. Figure 1.4a also shows that a significant proportion of this change occurred since about 2004. Prior to 2004, productivity trends in the two regions were more similar, but Pakistan did not experience the surge in productivity that occurred in other parts of the region after 2004.

Figure 1.4b compares productivity levels in Pakistan and in South Asia (excluding Pakistan) from 1991 to 2016, for each of the three industry sectors. In each industry, productivity growth in Pakistan has stalled relative to that in the rest of the region, especially since 2004, with the partial exception of services. Over this 25-year period, productivity growth in Pakistan in agriculture and industry has been about one-third of that in the rest of South Asia (1.0% per annum by comparison to 3.5% in agriculture and 1.3% per annum by comparison to 3.8%), and the differential has been even greater in the second half of the period. This is a striking and powerful indicator of the opportunities missed by Pakistan over the past quarter of a century, but also of the opportunities to be realised by effective policies in the future.

1.1.3 Challenges for recently emerging economies and for Pakistan

These data illustrate the challenge that many developing countries face in the wake of the East Asian revolution, the opening-up of global trade and the rapid application of new technologies in all sectors of the global economy. High rates of growth of manufacturing, based on exports and rising domestic incomes, are difficult to achieve. Services offer some growth, but not an impetus to radical structural transformation. With close to or over 50% of employment in agriculture, much of agriculture tends to be concentrated in smallholder producers, with limited physical or human capital and little policy support to help them achieve higher output and productivity. These smallholder producers are often excluded from modern supply chains, such as those based on supermarkets. Modest growth in agricultural output means that little off-farm surplus is available to drive rural industries,

(a) Total economy



(b) By industry

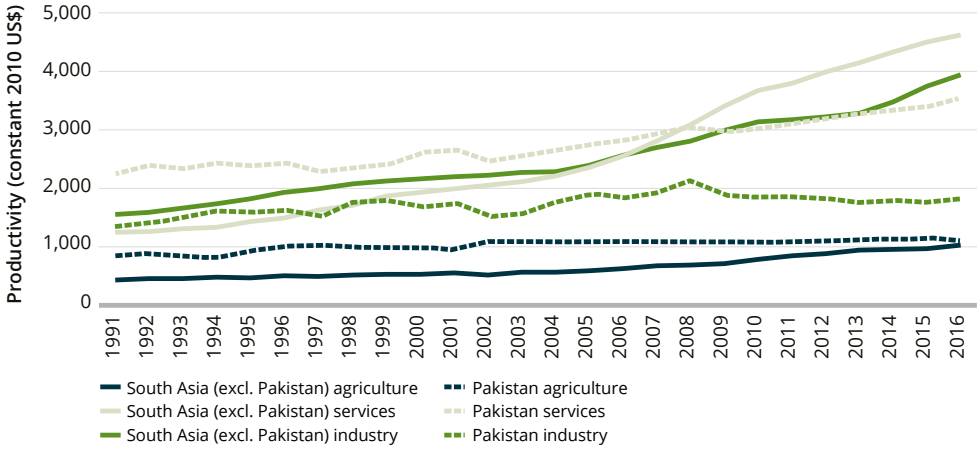


Figure 1.4 Productivity levels—total economy and by industry—in Pakistan and South Asia (excluding Pakistan), 1991–2016.
Source: World Bank (2018), ILO (2018) and authors' calculations.

and there is little surplus income to fuel the growth of services in villages and rural towns. The source of the impetus for structural change and income growth is not apparent, and the problem is more difficult if there is also rapid population growth.

How developing countries best respond to this challenge is a vast topic, beyond the scope of this publication. It is widely acknowledged, however, that an important part of the response is the development of agriculture, and especially the smallholder sector, in ways that are both modernising and inclusive. Global agriculture has not stood still over recent decades, but has also experienced fundamental change. Here we describe recent thinking on inclusive rural transformation as a response to this challenge, before turning to the application of these ideas to Pakistan.

1.2 The transformation of agriculture

1.2.1 The changing nature and context of agriculture

Over the past three decades, many aspects of agriculture around the world have changed dramatically, although others, such as the dominance of small family farms in many countries, remain unchanged. Many recent reports have documented these changes, and we list four of them in Table 1.3.

We review these changes briefly here, as providing essential background to the challenges facing Pakistan.

1.2.1.1 Urbanisation

The combination of rising incomes and rapid urbanisation has driven change in food systems and markets worldwide. The share of the world population living in urban areas rose from 30% in 1950 to an estimated 54% in 2015 and is projected to reach 66% or 6.3 billion people by 2050 (FAO 2017). The ongoing shift of populations to urban centres, large and small, has both put pressure on available supplies of arable land and led to the development of complex supply chains to get food and other rural products to the residents of the cities and towns. In addition, urban populations tend to have higher incomes and to spend more on food and on value-added food products, further enhancing their role in the demand for food.

While many discussions of urbanisation focus on the growth of megacities, for many purposes the growth in small towns and cities is equally important. FAO (2017) reports that half of the global population lives in or within the 'sphere of influence' of small cities and towns. Pakistan, for example, is reported to have, in addition to large cities such as Karachi, Lahore and Faisalabad, 75 cities with a population of 0.1–1.0 million and 448 small towns with a population of less than 100,000. These towns play a key role in rural–urban linkages, the development of which is critical to rural transformation.

1.2.1.2 Dietary change with rising incomes

As incomes and food demand rise, pronounced shifts are evident in dietary patterns. These involve a shift away from a dominant starchy staple (rice or wheat) to greater reliance on

Table 1.3 Key reports on inclusive rural transformation.

Author	Title	Date
FAO	The State of Food and Agriculture: Leveraging Food Systems for Inclusive Rural Transformation	2017
IFAD	Rural Development Report 2016: Fostering Inclusive Rural Transformation	2016
FAO	The State of Food and Agriculture: Innovation in Family Farming	2014
Timmer, C.P.	Managing Structural Transformation: A Political Economy Approach	2014

animal products (meat, fish and dairy products) and more generally to a more diversified diet, for example including fruit and vegetables (Timmer 2014; FAO 2017). This shift in dietary patterns offers scope for diversification for small farmers, and can also lead to the expansion of off-farm services—packing fruit and vegetables; collecting, cooling and shipping milk; slaughtering and meat distribution; and collecting and milling feed grains—which provide employment for members of poor rural households.

1.2.1.3 The evolution of the food system

Urbanisation and dietary change are combining with other factors to drive change in the food system. This is the total of all the processes and activities required for the production, processing, delivery and consumption of food. Generally, food systems now cover a more extensive spatial region, with an increased share of value added contributed beyond the farm gate. In spite of this broader spatial coverage, they are less fragmented and more consolidated, with a greater use of advanced technology in the off-farm sector, hence becoming more capital intensive. Finally, to meet the requirements of the end user, more exacting quality and certification standards must be met by most agricultural products. These changes to the food system can all prove problematic for small farmers.

1.2.1.4 Open economies, rising international trade and the centrality of markets

These changes place much emphasis on the internal trade of agricultural products, and on the local and regional processes that make such trade possible. They are linked also to rising international trade in agricultural products, by both value and volume. Over the decade 2006–16, the value of global agricultural trade rose by 67%, or an average of 5.3% per annum, while trade in manufactured goods rose by only 37% or 3.2% per annum.

These and other changes provide both challenges and opportunities for Pakistan, but only little progress has been made in coming to terms with them. The links between farms and markets remain underdeveloped, extension systems to assist farmers to innovate and use improved technologies have many problems, adequate infrastructure for value-adding to rural produce is often not available, and the majority of farmers have little commercial influence. One sign of this is the fact that, taking 2016–17 and 2017–18 together, Pakistan's imports of food were 30% greater than its food exports.

1.2.2 The continuing dominant role of small family farms

Many of these trends benefit large, commercially oriented farms and create an expectation of a rising role of large farms in global agriculture. But in fact, small family farms remain the dominant agricultural structure outside the developed countries, and this makes it difficult for countries (including Pakistan) to adjust effectively to the changing nature of agriculture. For farms in low and lower middle income countries, the key facts seem to be as follows (FAO 2014):

- Farms of less than 5 hectares occupy about 70% of all farm land (75% in low income countries and two-thirds in lower middle income countries).
- Small farms tend to be more efficient than larger farms in the same country in terms of output per unit of land, perhaps because the land they have is managed more intensively and with great care.
- However, small farms tend to have very low levels of labour productivity, because low-cost labour is abundant.
- As a result small farms in these countries produce a substantial majority of farm output, their share of output being greater than their share of farm land, because of their higher productivity per unit of land.
- In spite of the changes in agriculture summarised above, in most low and lower middle income countries the share of small farms is continuing to grow (Fan

et al. 2013; FAO 2014). This seems to be due in varying degrees to continued rapid population growth, traditional inheritance practices of dividing family land up between the children (or at least the sons) and to limited availability of off-farm work.

In most economic contexts, what matters in terms of productivity is output per unit of input, and particularly labour productivity. But when labour is in unlimited supply and there are few other jobs available with a decent wage, the productivity of land rather than that of labour is what is most important.

Given the continued dominance of small family farms in many developing countries, the challenge is to assist them to come to terms with and benefit from the transformation of agriculture, rather than to facilitate their exit from agriculture. As Fan et al. (2013) and others point out, there are different types of small farms: subsistence farms and commercial farms, and within subsistence farms those that are non-viable and those that are potentially viable. These authors stress that different policies are necessary for different type of small farms. The appropriate policies will also depend on the stage that the country has reached in terms of agricultural transformation and on the other opportunities available to individuals.

1.2.3 The central role of smallholders in Pakistan

According to the 2010 Agricultural Census (Government of Pakistan 2010), in that year there were 24.1 million households in Pakistan, with an average of 7.1 members per household, giving a total population of the country of 171 million. Of these households, 12.3 million were agricultural households, covering 96 million people or 56.2% of the population. These agricultural households consist of 8.3 million farm households (those farming some land), covering 65 million people, and 4 million livestock holders (those having some cattle or buffalos, or five sheep and/or goats but not operating any farm area), covering 31 million household members.

There were 107 million livestock animals (cattle, buffaloes, sheep and goats) in Pakistan in 2010, spread across both livestock holders (40 million animals) and farm households (67 million animals held). While many livestock holders are poor, landless households with a few animals, this sector also includes some larger scale livestock producers. The average number of animals across the 4 million livestock holders in 2010 was 2.1 cattle, 1.9 buffaloes, 1.6 sheep and 4.4 goats, although there is wide variation across holders in both the number and type of animals held. Most farm households also have some livestock animals, although the average number of animals per household is a little lower than for livestock holders. The vast majority of the livestock held by farm households are on small farms—in 2010 80% of the cattle, 76% of the buffaloes and 79% of the goats were on farms of less than 5 hectares, as were about two-thirds of the sheep. These data reinforce the data on the importance of the livestock sector for Pakistan noted above, and its predominantly small-scale nature. Agriculture accounted for 18.9% of national GDP of Pakistan in 2017–18. The livestock contribution in value added was 58.9%, while the crop sector share was 34.4% (Government of Pakistan 2018).

Agricultural households provide important forms of employment for many Pakistanis, including some of the poorest individuals. It should be noted that the data provided here do not include livestock holders who have animals but do not farm any land. On-farm employment involves both family members and hired labour, either permanent or casual. In 2010, 27.7 million family members were doing agricultural work on their holdings, with a 64%/36% split between men and women and a 72%/28% split between full-time and part-time work. Farm households hired 28.7 million other workers, of which the vast majority (94%) were casual workers hired on a daily wage basis and only 6% were permanent employees.

There were 8.3 million private farms in Pakistan in 2010, and Table 1.4 shows the size distribution of those farms in that year, and in 1972. Between 1972 and 2010 the number of farms in Pakistan has more than doubled, from 3.8 million to 8.3 million, while the total farm area increased by only 8%. This implies a halving of average farm size, from 5.3 hectares in 1972 to 2.6 hectares in 2010, and a dramatic shift to smaller farms. Indeed the number of farms with less than 2 hectares increased fivefold over this period, rising from 28.1% of all farms to 64.7%. In addition, the average size of these very small farms fell by 21.5%, to 0.8 hectares.

Thus Pakistan has seen major change in the scale of its farm system in recent decades, with a massive rise in the number of small and very small farms, as well as a fall in the average size of those farms. The number of farms in both the 10–20 hectare range and 20 or more hectares has fallen by 25% or more, and the land area devoted to these farms has fallen. These trends are consistent with those in many other developing countries, and are likely to have continued through to 2018. By 2018, it is likely that farms of under 5 hectares account for over 50% of total farmland area and considerably more than 50% of farm output. The majority of livestock output is also likely to originate from small farms.

Among the factors driving the ongoing increase in the number of small farms and the reduction in size of those farms are traditional inheritance practices which require farms to be divided among the children and the limited supply of off-farm job opportunities relative to the continuing increase in population.

1.3 Strategies for transforming smallholder agriculture

1.3.1 The need for a new approach: towards inclusive rural transformation

Given that in many countries small family farms retain a dominant role in spite of broader economic and technological change, and that broader structural change is slow, it is widely agreed that countries need to pursue inclusive rural transformation as a step to structural transformation. For example, the Rural Development Report 2016 from IFAD defines inclusive rural transformation as a process

Table 1.4 Number of private farms and farm size in Pakistan, 1972 and 2010.

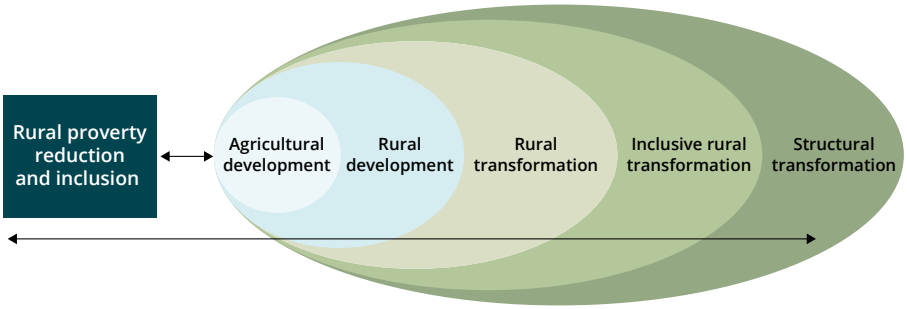
	Number of farms				Total farm area				Average farm area		
	1972		2010		1972		2010		Hectares per farm		Change 1972–2010 (%)
Size (hectares)	Number (millions)	%	Number (millions)	%	Hectares	%	Hectares	%	1972	2010	
Under 2	1.06	28.1	5.35	64.7	1.04	5.2	4.12	19.2	1.0	0.8	–21.5
2 to under 5	1.5	39.9	2.05	24.8	4.99	25.2	6.16	28.7	3.3	3.0	–9.7
5 to under 10	0.79	21.1	0.56	6.8	5.29	26.6	3.79	17.7	6.7	6.8	1.1
10 to under 20	0.29	7.7	0.21	2.6	3.73	18.8	2.72	12.7	12.9	13.0	0.7
20 and above	0.12	3.2	0.09	1.1	4.81	24.2	4.61	21.6	40.1	51.2	27.8
Total	**3.76**	**100**	**8.26**	**100**	**19.85**	**100**	**21.41**	**100**	**5.3**	**2.6**	**–50.9**
Memorandum items											
Under 5	2.6	68.0	7.4	89.5	6.0	30.4	10.3	47.9	2.4	1.4	–41.0
5 – <20	0.8	21.1	0.6	6.8	5.3	26.6	3.8	17.7	6.7	6.8	1.1
20 and above	0.4	10.9	0.3	3.7	8.5	43.0	7.3	34.3	20.8	24.4	17.3

Source: Government of Pakistan (2010).

...in which rising agricultural productivity, increasing marketable surpluses, expanded off-farm employment opportunities, better access to services and infrastructure, and capacity to influence policy all lead to improved rural livelihoods and inclusive growth. Inclusive rural transformation is thus a critical component of inclusive growth as a whole, and of sustainable development in all its dimensions – social, economic and environmental. ... Thus, this report is about transformation, but not just any transformation; it is about transformation that is inclusive and that brings rural people into the economic mainstream and the benefits of the twenty-first century economy. (IFAD 2016, p. 12)

Achieving inclusive rural transformation, and the full structural transformation to which it can give rise, is a multi-stage, path-dependent process. Box 1.1, reproduced from IFAD (2016), illustrates this multi-stage process. The path forward for any particular country depends on their starting point, and hence on their current situation.

Box 1.1 Agricultural development, rural development and rural transformation.



Agricultural development: improving the incomes and quality of life of farmers and agricultural workers, through the better exploitation of land-intensive resources such as agriculture, livestock, forestry and fisheries. Here improved agricultural services lead to improved output per unit of land.

Rural development: improving the opportunities of rural people, going beyond agricultural development to social and environmental objectives and encompassing health, education and other social services.

Rural transformation: rising agricultural productivity, increasing commercialisation and marketable surpluses in a diversified agricultural sector, as well as expanded off-farm employment and better access to services and infrastructure.

Inclusive rural transformation: moving towards a situation in which everyone, without exception, can exercise their rights, develop their abilities and take advantage of opportunities. This would lead to a marked improvement in the quality of life for small farmers, land poor and landless farmers, women and youth, and other marginalised groups.

Structural transformation: rising productivity in both agriculture and the urban economy, leading to major shifts to industry and services from agriculture, to further urban–rural migration and lower fertility rates. These inter-related processes provide the basis for rapid growth in all incomes.

Source: Reproduced from IFAD (2016).

The first stage is agricultural development, involving better use of land-intensive resources and leading to increased output per unit of land. This in turn provides higher incomes and improved quality of life for farmers and agricultural workers. Rural development goes beyond this, and involves broader opportunities for rural people, for example in terms of health, education and the environment. Both of these together can produce rural transformation, in which higher output and increased diversity in agriculture, together with better services, contribute to marketable farm surpluses and to increased spending on local services. This in turn leads to more off-farm employment, both in small-scale manufacturing and services, and to the development of more vibrant rural economies with a multiplicity of opportunities for rural people. Inclusive rural transformation is achieved when all groups within rural society—such as small farmers, land poor and landless farmers, women and youth—can participate fully and achieve a high quality of life.

Just as there are many types of small farmers, developing countries vary greatly in where they sit in terms of both the extent of rural transformation that has taken place and the degree of inclusivity of it. For countries that are both slow transformers and slow includers, the primary focus needs to be on building agricultural output and productivity, particularly in terms of output per unit of land or per animal, and addressing key issues of exclusion (such as the role of women). This seems to be the case for Pakistan in 2018.

IFAD (2016) undertakes an empirical analysis of trends in rural transformation and inclusion for 60 developing countries for a period of about two decades from the 1990s to the 2010s (precise data availability varies across countries). They use one indicator of rural transformation (the rate of change in agricultural value added per worker), one of structural transformation (the share of non-agricultural value added in GDP) and one of inclusion (the rate of change of rural poverty). They find that, while performance differs markedly between countries in a given region, the best performers in terms of increasing agricultural productivity and reducing rural poverty are in East Asia (China, Vietnam and Cambodia, but also Indonesia) and in Latin America (e.g. Ecuador, Chile and Peru). In these countries value added per worker in agriculture has been rising around 3% per annum and rural poverty has been falling by 2.5–3.0% per annum. These results are not representative of most countries studied.

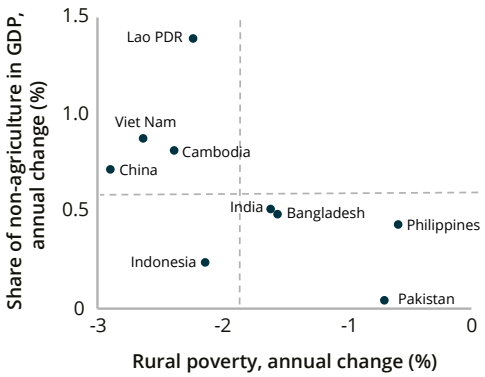
Figure 1.5 shows the IFAD 2016 results for nine countries in Asia and the Pacific. Of the nine, Pakistan has the lowest rate of both rural transformation (about 1% per annum) and structural transformation (close to zero) and is close behind the Philippines for the lowest rate of reduction of rural poverty (0.7% per annum). These data again highlight the need for an urgent and comprehensive policy response in Pakistan.

1.3.2 Recent and prospective policy developments in Pakistan

As noted earlier, important policy initiatives have begun to be put in place in Pakistan in recent years, to address some of the issues described in this chapter. These have been at both the national and provincial levels, and include:

- Pakistan Vision 2025
- National Food Security Policy 2018
- Punjab Growth Strategy 2018
- The SMART Punjab Project
- Punjab Livestock and Dairy Development Policy of Virtual Governance 2015
- The Sindh Agriculture Policy
- Sindh Agriculture Growth Project 2014–2019
- The inclusion of targets related to agriculture, farm incomes and Pakistan returning to being a net food exporter in the 12th Five Year Plan, 2018–23.

(a) Pace of structural transformation and rural poverty reduction, 1990s–2010s.



(b) Pace of rural transformation and rural poverty reduction, 1990s–2010s.

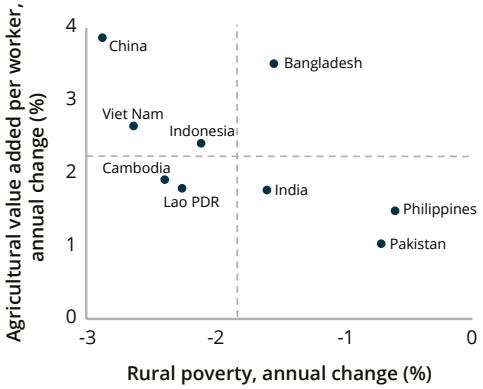


Figure 1.5 Structural and rural transformation and rural poverty reduction in nine Asian countries, 1990–2010.
Source: (a) IFAD 2016, Figure K, p. 43; (b) IFAD 2016, Figure L, p. 44.

These statements and initiatives are discussed further in Chapter 8 of this monograph.

In developing the policy recommendations of this project, our intention is to build on and extend these important developments. In shaping the key areas of focus for policy initiatives, we drew on all available information and the detailed knowledge of the project partners. In addition, we commissioned a field study of the constraints faced by smallholders, as described in Box 1.2, which carried out structured interviews in 207 villages in Punjab and Sindh.

We conclude that major initiatives for transforming smallholder agriculture in Pakistan are required in five areas:

- improved access to markets, domestic and international, and increased reliance on market processes
- greater innovation on the ground in Pakistani agriculture, particularly more demand-based extension services for smallholders and increased R&D focused on their actual needs
- much better access to formal credit for smallholder farmers, through institutional and technological changes that facilitate lending to smallholders
- more effective development of various forms of rural producer organisations, to provide a critical mass of smallholders for innovation, credit access, purchasing, access to downstream facilities such as processing plants, and access to markets
- real enhancement of the role of women, who already play a major role in smallholder farming but are neither empowered nor trained sufficiently to play their roles effectively.

These policies, discussed in detail in the body of this monograph, need to be supported, at the provincial level, by territorial initiatives to support market linkages at the village and town level. They need to be seen as long-term policies and not individual projects; tailored to different circumstances in different regions, with appropriate infrastructure support; and implemented in an integrated way across the five policy areas and with strategic cooperation between the national government and provincial governments. In our view, if there is to be enhanced focus on smallholders and on livestock, major new initiatives are needed to assemble much better data on these sectors.

Box 1.2 Field survey: understanding the constraints faced by smallholders in Punjab and Sindh.

To gain a better understanding of the constraints which policy should address, a team lead by Associate Professor Kashif Rashid from COMSATS University Islamabad carried out a structured interview schedule. The purpose of the field study was to identify the constraints faced by smallholders in dairy, citrus and mango industries in Punjab and Sindh (i.e. those having less than 5 hectares of arable land or less than four dairy animals). In addition to dairy farmers, citrus growers and mango farmers in Punjab and Sindh, different non-farmer stakeholders were also interviewed to collect relevant information, including middlemen, lenders, extension workers and field assistants, and government officials of departments of agriculture, and livestock and dairy in Punjab and Sindh. Overall, the information was collected from 14 villages for citrus in the Punjab (none in Sindh, because little citrus is grown in that province); 45 villages for dairy in the Punjab, 58 villages for mangoes in the Punjab, and 90 villages for dairy and mango farmers in the Sindh.

Focused group discussions were held with smallholders about the importance of access to credit, access to markets, the role of extension services and ways to reduce constraints and improve livelihoods. Extension workers and field assistants were interviewed to determine the type of extension services, academic/training levels, normal working hours, the level of compensation and mechanisms of service delivery available to small farmers. Forthcoming academic papers by Professor Rashid and his colleagues will provide further information on these field studies and their findings.

1.4 The impact of transforming smallholder agriculture in Pakistan

In Pakistan, as in many other developing countries, smallholder agriculture lies at the heart of the economic and social system. The effective and sustained implementation of a strategy for smallholder agriculture would have four economic effects, as shown in Figure 1.6:

- increased output and productivity (both per unit of land and per unit of labour), with a direct increase in household income from livestock and farming activities
- increased spending by smallholder householders on local goods and services, both to supply expanding business activities (e.g. fodder, seed, equipment) and from higher household incomes (e.g. food, entertainment, education, health and housing)
- increased off-farm surpluses, as an input to local, small-scale manufacturing (such as processing of milk, citrus and mangoes)
- higher levels of off-farm employment for members of smallholder households in both the services and industry sectors, resulting in further increases in household incomes.

Taken together, these processes can create a virtuous circle, in which a series of feedback loops between the various effects drive more rapid growth. For example, if a household generates higher income from higher farm and livestock output and from increased off-farm employment, this will provide it with resources to invest in better inputs, improved methods and new technologies. This additional investment will in turn generate increased income in the core business, further purchases by the business on local goods and services, and increased spending by the household. There are also demonstration effects: as

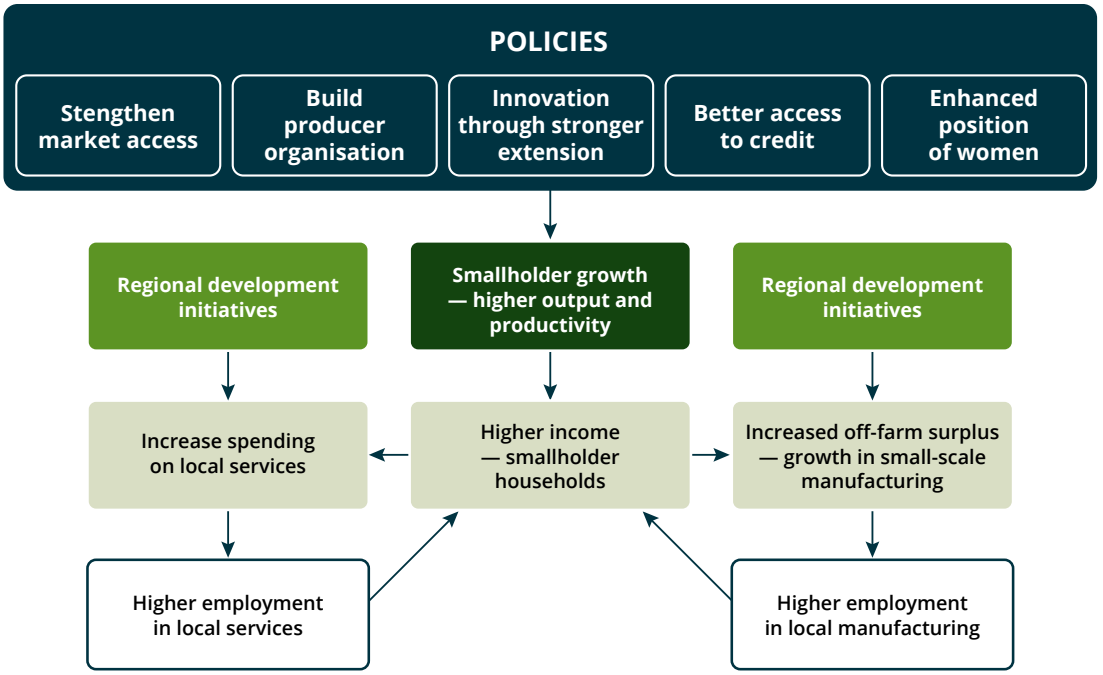


Figure 1.6 The impact of smallholder interventions through dynamic feedback processes.

some households move ahead, many others will be induced to follow a similar path. The social processes put in train by unleashing the power of women to participate more fully in the economic affairs of the household—with more knowledge, respect and confidence—will further stimulate change.

These dynamic processes involving feedback loops have been much studied in economics and related disciplines and underlie the rapid economic growth achieved in some developing countries in recent decades. For the reasons outlined above and throughout this monograph, we believe that Pakistan now has the opportunity to reap the benefits of such processes originating in the smallholder sector.

Such dynamic processes are inherently difficult to quantify, as it is difficult to measure links between farms and sectors, and feedback loops are complex. This is especially true in the case of Pakistan's smallholder agricultural sector, where even basic data are very limited. We offer two indications of the potential scale of the impact of change in the smallholder sector.

In economic terms, we can derive an estimate of impact of a given increase in smallholder value added by 2017–18, relative to what would otherwise be the case. We start from an estimate of the share of smallholders in agricultural value added in 2017–18 (60%), and assume that the multiplier relating the increase in agricultural value added to value added in the rest of the economy is 2, that is, that the full downstream effect of increased smallholder spending on industry and services is twice the original value added in agriculture.

On this basis a 25% increase in smallholder value added by 2027–28, relative to what would otherwise be the case, would increase the rate of growth of national GDP over the decade by 0.7 percentage points (e.g. from 5.0% p.a. to

5.7% p.a.). If the increase in shareholder value added induced by the new strategy was as high as 50%, the increase in the rate of growth of GDP would be 1.4 percentage points (e.g. from 5.0% to 6.4%). If the increase were only 15% over ten years, the increment would be 0.4 percentage points. As there is no difference in the population between the two scenarios being compared here (the unchanged policy case and smallholder strategy case) these increases can also be interpreted as increased growth in per capita GDP. It is worth noting that, over the decade to 2017–18, real per capita GDP in Pakistan increased by 2.0% per annum.

We make no claim to precision in any of these estimates. The point is simply to illustrate that, given Pakistan's current situation, a transformation of smallholder agriculture would have a massive impact of Pakistan's overall economic situation. On the reasonably conservative assumption that the sustained implementation of the policy measures outlined above led to a 25% increase in value added in smallholder agriculture, the result of these measures alone would be to increase the historical growth of GDP per capita by about one-third.

In social terms, one critical effect of the rejuvenation of smallholder agriculture will be a substantial reduction in poverty in Pakistan. There is an extensive literature showing the special effect of growth in agriculture on reducing poverty (see Ravallion and Chen 2007; Loayza and Raddatz 2010; de Janvry and Sadoulet 2010; Grewal et al. 2012), which is in part because in developing countries a high proportion of the poor are in rural areas. This will be especially evident for growth in smallholder as opposed to large-scale agriculture. The data in panel (b) of Figure 1.5 indicate that countries that achieved about 2% per annum growth in real agricultural value added per worker over 1990–2010 had a reduction in rural poverty in excess of 2% per annum. By comparison rural poverty in Pakistan fell by only 0.6% per annum over this period. If Pakistan succeeds in revitalising smallholder agriculture, it can expect to see a rate of reduction in rural poverty in excess of 2% per annum.

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2 International trade analysis

2.1 Introduction

The previous chapter discussed smallholder agriculture in Pakistan in the context of global transformations taking place and highlighted:

- the explosive growth in urbanisation, associated with
- changing urban diets away from staples and towards meat, dairy, fruit and vegetable products, and more generally to processed food products
- evolution of food production systems involving production, processing, delivery, wholesale, retail and consumption
- open economies and the rapid growth in international trade.

This chapter focuses on potential international demand for Pakistan food exports. The central thesis is that there is enormous potential for Pakistan to become a major food exporter to the benefit of smallholders, and a major generator of foreign exchange for the benefit of the country more generally. It is not a lack of opportunity holding Pakistan back from further export success, but lack of ability to deliver product to export markets. Many aspects of this monograph address how to enhance Pakistan agricultural capabilities, which may then lead to substantial increase in exports.

The changing nature of urban diets towards increasing levels of animal proteins, fruits and vegetables and more processed foods has been noted. This is a global phenomenon and much of the expected global growth is located near Pakistan in North, Central and South Asia, the Middle East and in South-East Asia. These developments provide opportunities for Pakistan to leverage this for farmers, agri-businesses, input suppliers, and non-farm service suppliers. The key is to further develop efficient linkages between the rural areas and food service businesses in towns/cities and ultimately to domestic and export markets.

2.2 Global trade in meat, dairy, fruit and vegetable products

Figure 2.1 shows the global import values for dairy, eggs, honey, meat, fruit and vegetable imports. In 2001 imports were valued at just under US$200 billion, and this increased three-fold with imports valued at just over US$600 billion in 2017. A linear extrapolation sees imports increasing by another US$300 billion by 2025.

Figure 2.2 and Figure 2.3 show the above imports sourced from Pakistan and list Pakistan's exports as a share of world imports. Pakistan is a small supplier on a global scale supplying US$1.6 billion in 2017, mostly fruit and vegetables. Pakistan has a market share of less than 0.7%, although imports sourced from Pakistan are increasing over time.

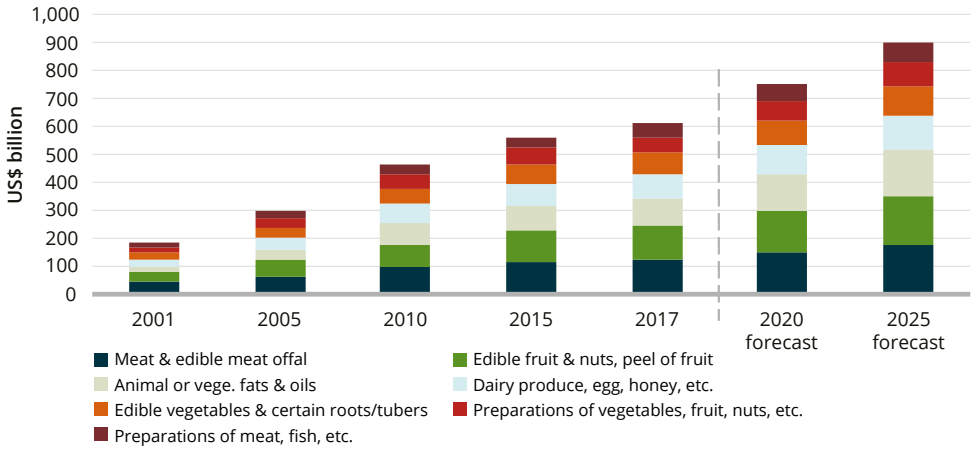

Figure 2.1 Value of world imports of dairy, eggs, honey, meat, fruit and vegetable products, forecast to 2025.

Forecast based on linear regression predictions.
Source: TradeData International.

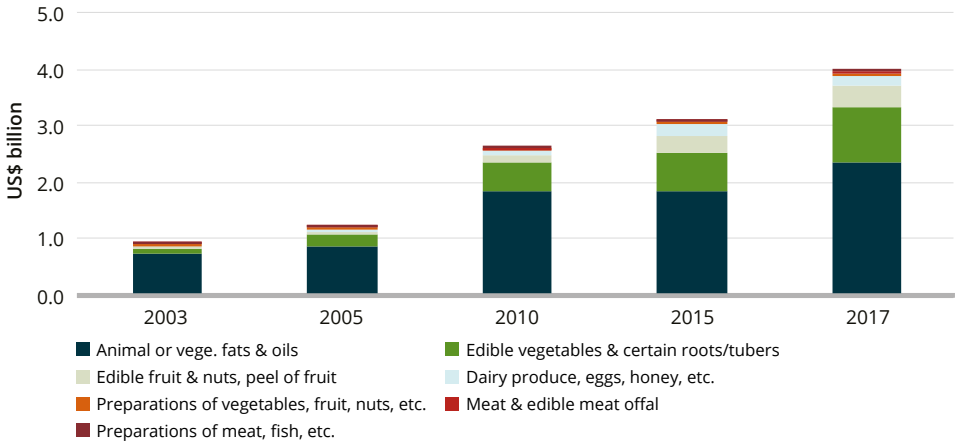

Figure 2.2 Value of world imports of dairy, eggs, honey, meat, fruit and vegetable products from Pakistan.

Source: TradeData International.

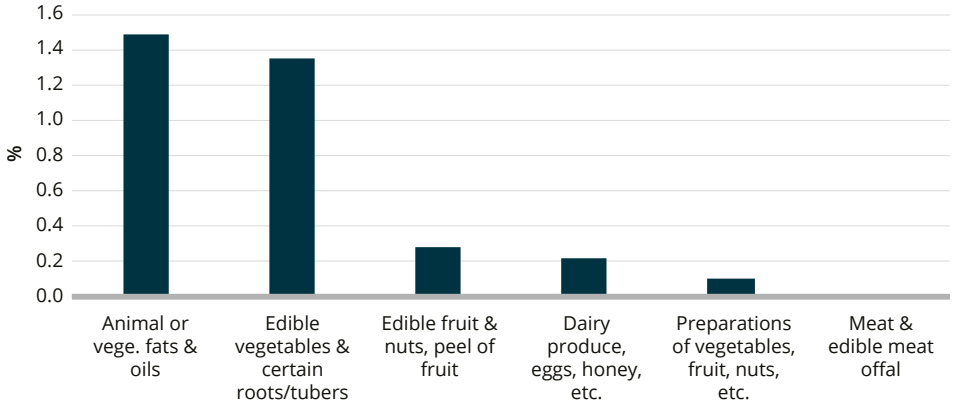

Figure 2.3 Share of world imports sourced from Pakistan of dairy, eggs, honey, meat, fruit and vegetable products, 2017.
Source: TradeData International.

2.2.1 Nearby regional import markets

The import markets neighbouring Pakistan are growing far faster than the world market. Figure 2.4 lists the value of dairy, eggs, honey, meat, fruit and vegetable product imports into Asia, the Middle East and Oceania. Import values increased four-fold between 2001 and 2017, and if these trends continue, import values will increase by a further 50% by 2025. Pakistan is strategically located in the middle of these fast-growing import markets.

2.3 Pakistan exports

In this project we undertook a detailed international trade analysis for mangoes and mandarins, and this is presented later in this chapter. In summary, markets for these fruits are increasing. Pakistan has a low market share and exports small volumes to a wide range of countries. The remainder of Pakistan's exports are highly concentrated in only a small number of countries. Pakistan exports

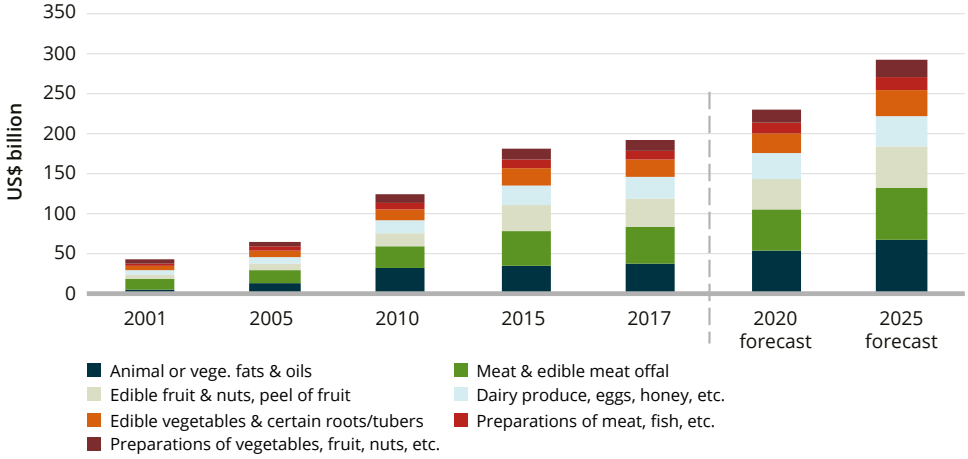

Figure 2.4 Value of Asia, Middle East and Oceania imports of dairy, eggs, honey, meat, fruit and vegetable products, forecast to 2025.
Forecast based on linear regression predictions
Source: TradeData International.

significant volumes to only a small number of countries and tiny volumes to a large number. Thus, there are many potential opportunities to expand exports and some of these are identified in this chapter.

2.3.1 Lack of processing and export market diversification

Product processing is another major potential export opportunity not grasped by Pakistan. The trade analysis demonstrates the importance of processed product for export. For example, a significant proportion of Indian mango exports are processed product. In the large USA import market, around 40% of Indian exports to the USA are dried mangoes. There are no dried mango exports from Pakistan to the USA. Processing also allows for ongoing storage and for export supply continuously throughout the year, and not just when fresh in season, as is currently the case for Pakistan exports.

An additional advantage of increased fresh and processed exports is that these fruits are then not sold into the local market which, in season, is generally oversupplied leading to low prices. Smallholders mostly sell into the local market. Increased export sales of fresh and processed product will have the by-product of supporting local market prices, and thus supporting smallholders.

RECOMMENDATION 2.1

It is recommended that policies be introduced to promote development of food processing facilities in rural settings of Pakistan, for supplying both the domestic and export markets.

2.3.2 Cooperation with Indian companies

Indian companies have a long and successful history of acting as sourcing agents for many retailers in North America and across Europe. They already have existing supply arrangements in place. If cooperation between Pakistan and India can be improved, Pakistan exporters could gain increased access into these supply networks via Indian companies.

For some products, such as mangoes, the Pakistan season follows the Indian season. Cooperation with India would enable Indian fresh product exporters to offer their customers a longer supply period if they are able to supply first from India and then from Pakistan.

RECOMMENDATION 2.2

It is recommended that federal and provincial governments assist in facilitating linkages between Pakistan exporters and Indian sourcing agents that have existing supply networks into North America and Europe.

2.3.3 Smallholder participation in modern supply chains and export markets

Modern supply chains (for example, supermarkets) require supply of quality fresh fruit with strict hygiene, volume and traceability requirements. Smallholder farms traditionally supply small local retail stores or roadside stalls. Smallholder participation with supermarkets may only be possible via producer groups or other collective action that can generate the scale required by supermarkets and can also offer smallholders the education and other inputs to meet quality and traceability requirements.

The combination of collective arrangements with contract farming may also enable smallholder participation in large modern retail markets. Chapter 6 covers policies to encourage collective arrangements.

Like supermarkets, export markets require quality products with correct grading, handling, packaging and presentation. These are particularly important to achieve the higher prices often attained.

To satisfy export requirements there need to be major improvements in Pakistan's agricultural marketing chains. This will start at the farm to ensure that the various certifications are attained. Product must then be properly harvested, handled, treated, graded and packaged before export. For Pakistan these issues pose significant challenges. In many cases, large-scale structural and organisational changes will be required, and government will have to play a significant role in initiating these changes. Chapter 5 discusses many of these issues.

RECOMMENDATION 2.3

Strengthen regulations associated with product testing, grading, standards, and weights and measures, and introduce a national grading system that is credible, enforceable, widely published and accepted.

2.3.4 SPS compliance

The system of sanitary and phytosanitary (SPS) agreements relates to the application of SPS measures to food safety and related regulations for animal welfare and plant safety. All countries are encouraged to adopt measures based on international standards backed by scientific research. Developed countries tend to adopt higher SPS standards and there are numerous accreditation schemes, which are required to be met for export to developed countries. Some examples are Global Good Agricultural Practice (Global GAP) and EurepGap.

SPS regulations force exporting countries to adopt very specific agricultural production, harvesting, handling, transport and trading practices. These require whole supply chain adherence and in many instances are not compatible with traditional methods often found in Pakistan. Related to this is the availability of scientific and technical expertise in government and throughout the whole supply chain on SPS matters. Chapter 4 considers the role a revamped system of extension services can play in delivering training to smallholders to achieve necessary accreditations.

To achieve SPS compliance substantial investment is required throughout the supply chain. However once achieved, there is then the possibility to substantially increase and diversify Pakistan exports. Associated with this diversification is the new emerging organic export market—a growing niche market that Pakistan may be able to exploit.

RECOMMENDATION 2.4

Develop policies to ensure that SPS requirements of export markets are met, and that efficient SPS dispute resolution capabilities are in place.

2.3.5 Export marketing: freer trade and export promotion activities

The world import market for high-quality reasonably priced fruits, vegetables, meat and dairy products is growing steadily. Much of the expected growth in international agricultural trade is located near Pakistan.

In addition, Pakistan exports are heavily concentrated in a few countries and there is a need to diversify this reliance. For example, mandarin exports are heavily concentrated in the Russian market and mango exports in the UK and the UAE. Pakistan also mostly exports fresh produce, whereas its neighbour, India, is also a significant processed product exporter.

One area for government involvement in export trade is in negotiating bilateral free trade agreements (FTAs) which involve improved market access and create a freer flow of goods and services. Pakistan has already negotiated improved market access to China, the South Asian Association for Regional Cooperation Countries and several other countries.

RECOMMENDATION 2.5

Federal government should continue negotiating bilateral trade agreements to increase access for Pakistan's agricultural exports. Both federal and provincial government should be active in overseas export promotion activities, such as assisting potential exporters to meet overseas customers.

RECOMMENDATION 2.6

It is recommended that a major strategic policy objective for the Pakistan agricultural sector should be to become a significant global supplier of key agricultural products into nearby regions in coming years.

2.3.6 China–Pakistan Economic Corridor

The China–Pakistan Economic Corridor (CPEC) is a collection of infrastructure projects that are currently underway throughout Pakistan. Improved transport infrastructure is a major component with a large network of highways and railways to be built that will connect Gwadar and Karachi in the south with northern Pakistan and then into Western China and Central Asia.

This improved infrastructure is important in providing rural Pakistan with more efficient transport linkages with the major domestic urban and international markets. China is the largest regional market and fast growing, and CPEC is an important enabling infrastructure for increasing Pakistan rural exports.

2.4 International trade analysis

2.4.1 Dairy products

There was no major focus in the project on dairy export development, despite the rapid rise in domestic demand and imports of dairy products. However, recent policy papers from the Punjab Livestock and Dairy Department introduce this focus with a range of initiatives that, if successful, will enable Pakistan to become a significant dairy exporter.

TradeData analysis shows the value of the dairy trade into selected Asian countries—China, Indonesia, Singapore, Malaysia, South Korea, Thailand and India—and shows imports increasing rapidly up until 2014 (Figure 2.5). The value of imports declined substantially in 2015 due to declines in prices; 2015 levels were maintained in 2016. Even after these declines

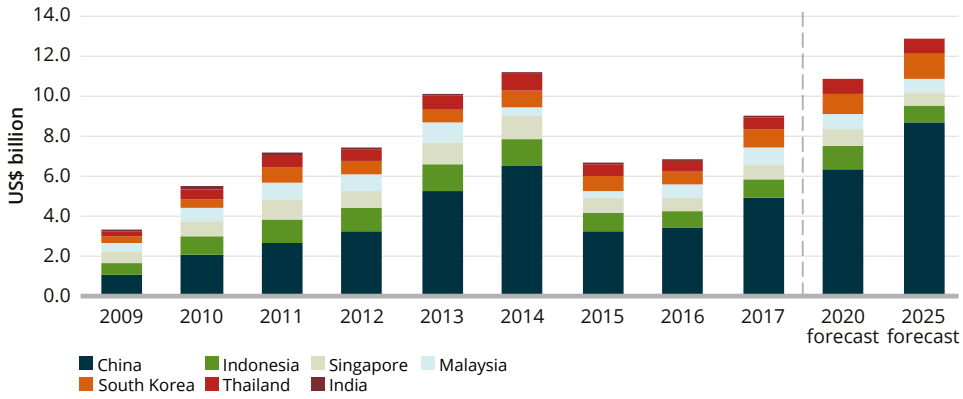

Figure 2.5 Value of dairy imports, selected countries, 2009–25.
Source: TradeData International.

import trade was still more than US$6 billion in 2016. Trade rebounded strongly in 2017. A linear interpolation of these trends to 2025 sees dairy imports of around US$13 billion in 2025. A huge import market for dairy products exists near Pakistan with China accounting for more than half of the trade. The development of efficient transport links by the CPEC between Pakistan and China is enabling potential dairy exports.

Figure 2.6 lists the major dairy products imported into the selected countries. Powdered milk is by far the major product traded followed by whey powder, cheese and butter.

2.4.2 Mandarins

2.4.2.1 Global trade

The global international trade in mandarins is estimated at around US$4.5 billion in 2017. A linear interpolation of recent trends suggests a world market of around US$5.4 billion in 2025 (Figure 2.7).

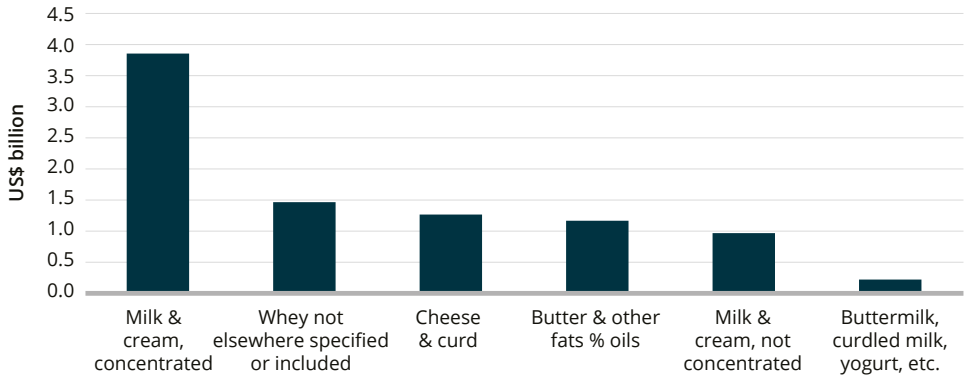

Figure 2.6 Value of dairy imports, selected countries (China, Indonesia, Singapore, Malaysia, South Korea, Thailand and India), by product, 2017.
Source: TradeData International.

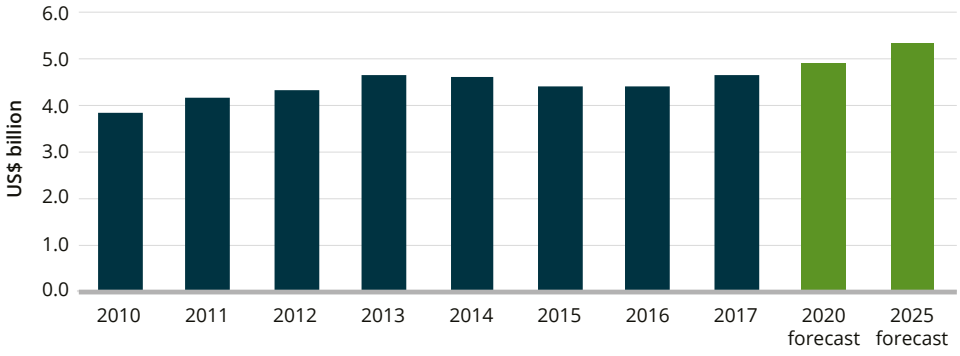

Figure 2.7 Value of global mandarin imports, 2010–25.
Forecast based on linear regression predictions.
Source: TradeData International.

The major import markets are Russia, Western Europe and North America (Figure 2.8). However in Asia, Thailand, Indonesia, Malaysia, Vietnam and the Philippines are also significant import markets. Mandarins are imported into many countries as can be seen in the 'Others' component in the figure.

Imports of mandarins are highly seasonal with the high season between October and the following April (Figure 2.9). Pakistan is a relatively small supplier to the global market and can supply during the second half of this period between January and May. The global market declines markedly as the Pakistan supply season progresses.

During the Pakistan supply season (January to May), Pakistan supplies an estimated 5% of global trade. The larger import countries currently are Russia, Germany, France, UK and USA, but many other countries also import mandarins during the Pakistan supply season, as seen in Figure 2.10.

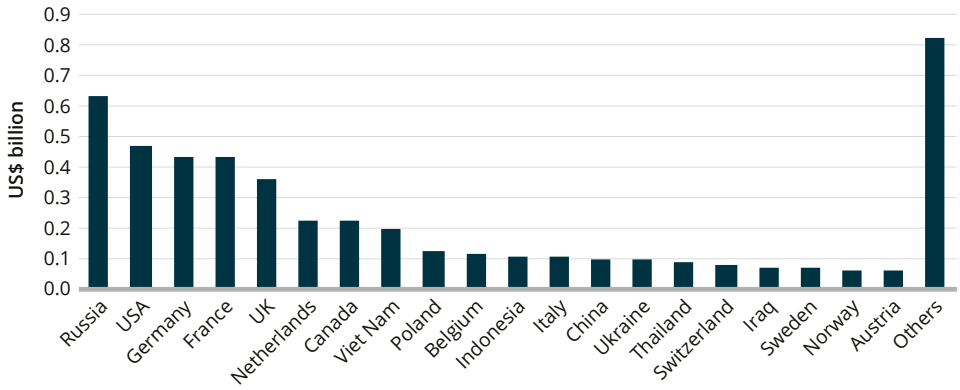

Figure 2.8 Value of mandarin major import markets, 2017.
Source: TradeData International.

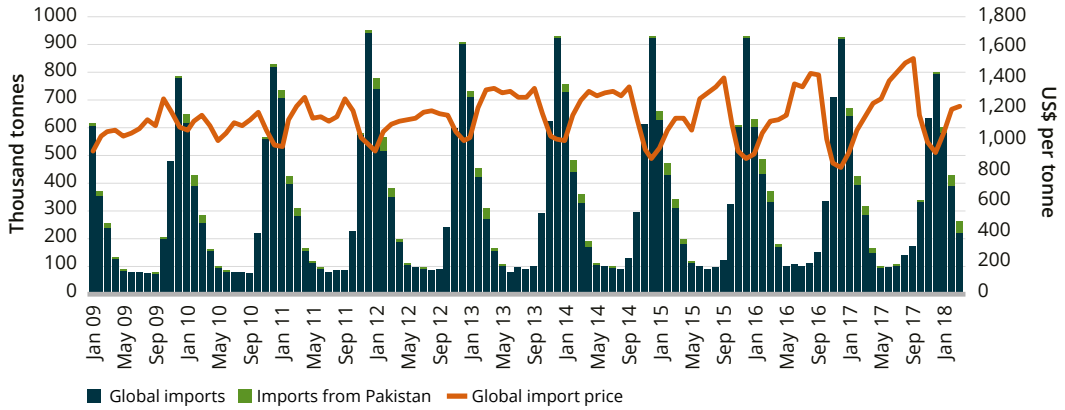

Figure 2.9 Mandarin global imports and imports sourced from Pakistan, 2009–18.
Figure includes around 80% of global trade and covers countries that supply up-to-date monthly information.
Source: TradeData International.

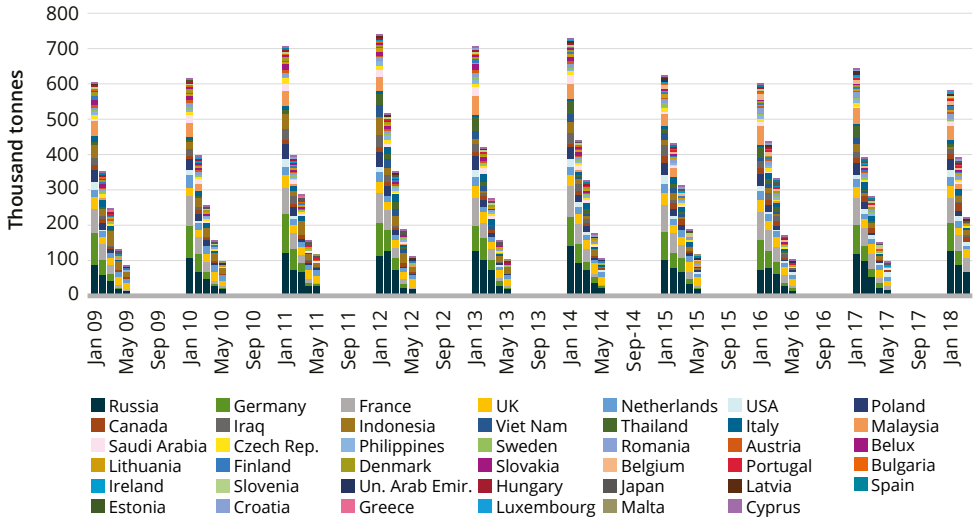

Figure 2.10 Mandarin import markets during the Pakistan supply season, January to May.
Source: TradeData International.

2.4.2.2 Russian trade

Although the global market is diverse, Pakistan's mandarin exports are concentrated into Russia. In the large Russian market, Pakistan supplies in the second half of the peak season and is a relatively small supplier. Imports into Russia from Pakistan declined in 2017 and these lower levels were maintained early in 2018. Pakistan's reliance on one export market underlies the need for diversification (Figure 2.11).

2.4.2.3 Other markets

Pakistan also exports mandarins to a wide range of other countries (Figure 2.12), but mostly only small volumes. Thus, there is

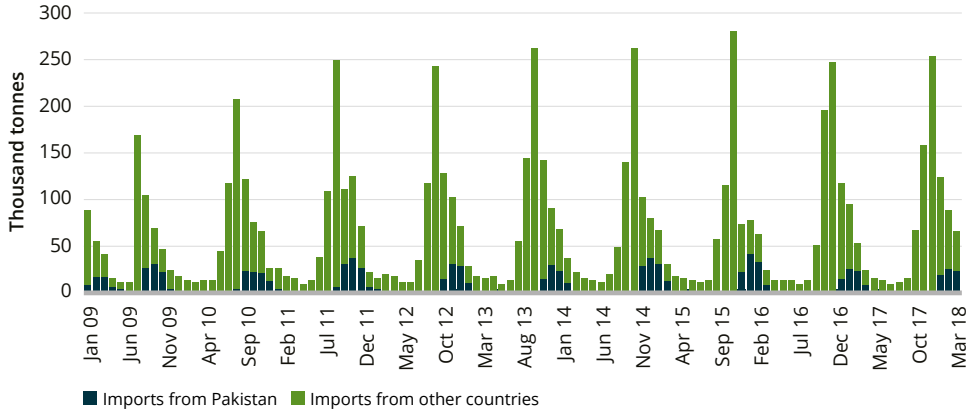

Figure 2.11 Pakistan in the Russian mandarin import market, 2009–18.
Pakistan is a major supplier to Russia for 3 to 4 months a year.
Source: TradeData International.

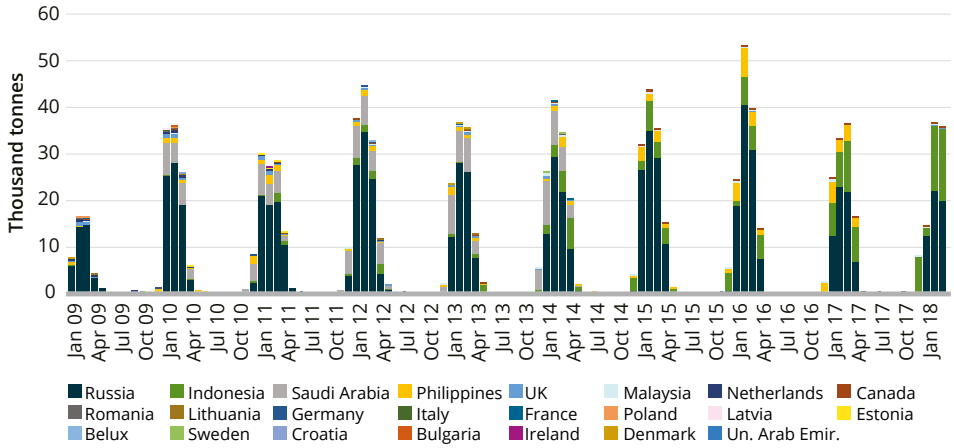

Figure 2.12 Mandarin imports sourced from Pakistan, 2009–18.

Pakistan mandarins are mostly exported to Russia. Exports to Indonesia increased strongly in 2014 and 2015, and particularly in early 2018. Saudi Arabia and UAE data are not available after 2014.
Source: TradeData International.

potential to substantially increase these export levels. In the UK, Pakistan is a tiny supplier and exports have declined substantially in recent years. Pakistan is also only a small supplier to other Western European markets, and exports to the USA are negligible.

2.4.2.4 Indonesian trade

A more recent development is Pakistan mandarin exports to Indonesia (Figure 2.13), which have increased strongly since 2014.

The development of this market showcases the results of active government engagement in export promotion and free trade agreement negotiations.

In the years up to 2011, the Indonesian market was totally dominated by supply from China. The year 2011 saw the beginning of Pakistan exports to Indonesia and these have increased substantially since then. By 2018 Pakistan has become the dominant supplier to Indonesia (Box 2.1).

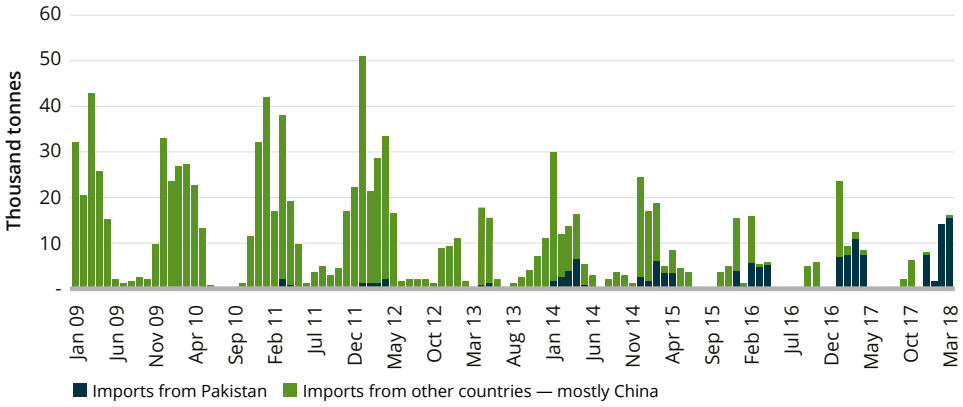

Figure 2.13 Pakistan's emergence in the Indonesian mandarin import market, 2009–18.

Bilateral government negotiations led to the opening of the Indonesian market to mandarins from Pakistan.
Source: TradeData International.

Box 2.1 Case study: active government involvement in the opening up of Kinnow mandarin exports to Indonesia

The recent opening up of the Indonesian import market to exports of mandarins from Pakistan demonstrates how active Pakistan government involvement has led directly to increased exports. Pakistan and Indonesia have had cordial relations for decades and in trade terms there was a trade imbalance heavily in favour of Indonesia.

Several years ago, both countries agreed to form interdepartmental working groups to advise on negotiations on a preferential trade agreement (PTA) between the two countries. The recommendations of the working groups were discussed at a series of meetings, in Jakarta and Islamabad, and this led to the signing of the PTA in February 2012. The agreement seeks to increase market access to both parties by lowering tariffs and working towards increased cooperation on SPS issues.

As part of the PTA follow-up processes, the Pakistan Department of Plant Protection and the Indonesian Agriculture Quarantine Authority had a series of meetings and exchanged technical information on SPS-related issues. This led to a mutual recognition agreement (MRA) which was signed between the two quarantine authorities on 30 August 2013. The MRA outlines how SPS issues between the two countries are to be handled and how any disputes that might arise are to be resolved.

Through this agreement, Pakistan obtained access for all Pakistani agricultural products into Indonesia at mutually agreed reduced tariff and excise duties, and was granted the use of Tanjung Priok seaport for export of its Kinnow mandarins.

Previously an import duty of 35% was levied on the import of Pakistani Kinnow into Indonesia. After the signing of the PTA and MRA, tariffs were reduced to zero. In addition, the use of Tanjung Priok seaport is important. Tanjung Priok is the main seaport for Jakarta and had been closed for agricultural imports due to the lack of sufficient laboratory and testing facilities. The MRA overcomes this barrier.

Thus active government involvement at both a departmental level (working groups, joint discussions, country visits etc.) and at a ministerial level was important in facilitating the now recorded increased exports of Pakistan mandarins to Indonesia.

Source: Based on material supplied by Razaq A. Malkana.

2.4.2.5 Philippines and Vietnam potential

Pakistan currently exports small volumes of mandarins to many countries. There are two other significant import markets in South East Asia which are similar in character to Indonesia in 2010—the Philippines (Figure 2.14) and Vietnam (Figure 2.15).

RECOMMENDATION 2.7

It is recommended that Pakistan should evaluate the Philippines and Vietnam as potential mandarin export opportunities and attempt to duplicate the recent success in Indonesia.

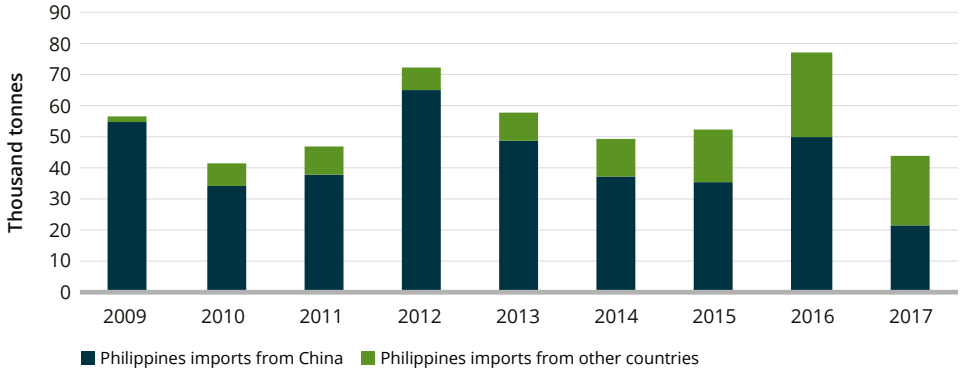

Figure 2.14 Philippines mandarin imports, 2009–17.
Source: TradeData International.

Figure 2.15 Vietnam mandarin imports, 2011–17.
Source: TradeData International.

2.4.3 Mangoes

The global international trade in mangoes is around 1.5 million tonnes with a value of US$2.8 billion in 2017 (Figure 2.16). Global trade is growing steadily. Values are growing faster than quantities thus average prices are increasing. If current trends continue global mango imports are expected to be around US$4.3 billion in 2015.

The major import markets are the USA and Western Europe (Figure 2.17). UAE, Saudi Arabia and Japan are also important markets. However, many other countries also import mangoes (as seen in the large 'Others' element in Figure 2.17) and these countries also represent potential future export opportunities for Pakistan.

International trade in mangoes is highly seasonal with the peak season between February and September. Pakistan can supply during the second half of the peak season between May and September (Figure 2.18). The peak month is May which is at the beginning of the Pakistan export season. Pakistan is currently a small supplier to the global market but a significant supplier for a few months when in season.

During the Pakistan supply season, there are many countries that import mangoes (Figure 2.19). The larger markets are North America, Europe, North Asia and the Middle East.

Pakistan mangoes are mainly exported to the UK, the UAE and Saudi Arabia, and other countries in Europe (Figure 2.20). Exports to

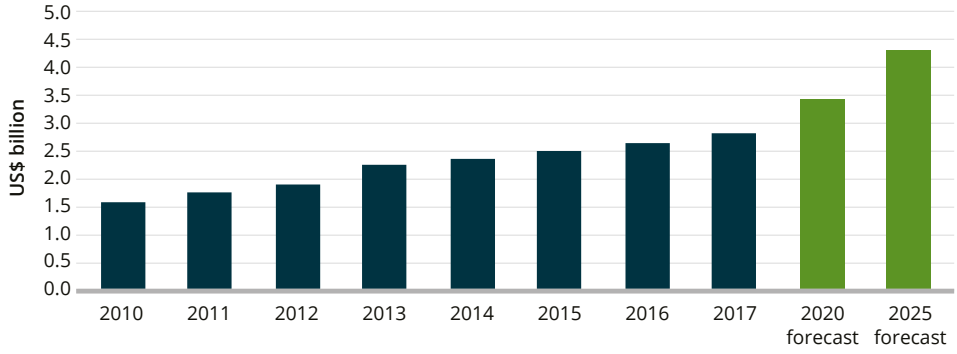

Figure 2.16 Value of global imports of mangoes, 2010–25.

Forecast based on linear regression predictions.
Source: TradeData International.

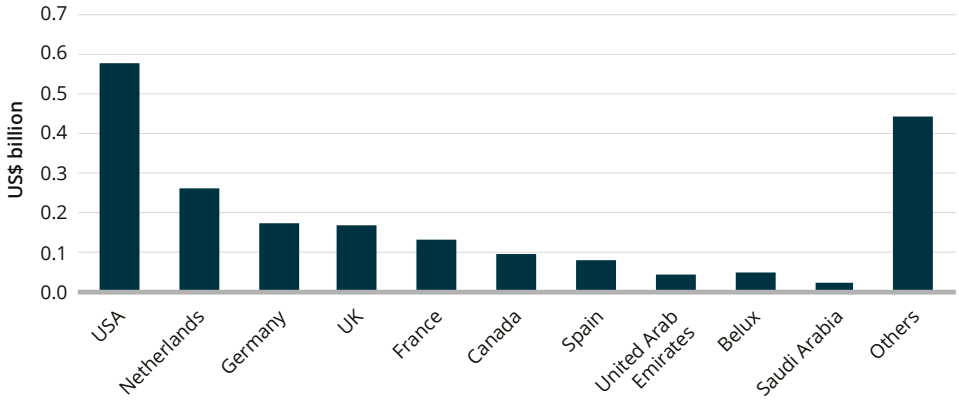

Figure 2.17 Value of global mango imports by country, 2017.

Source: TradeData International.

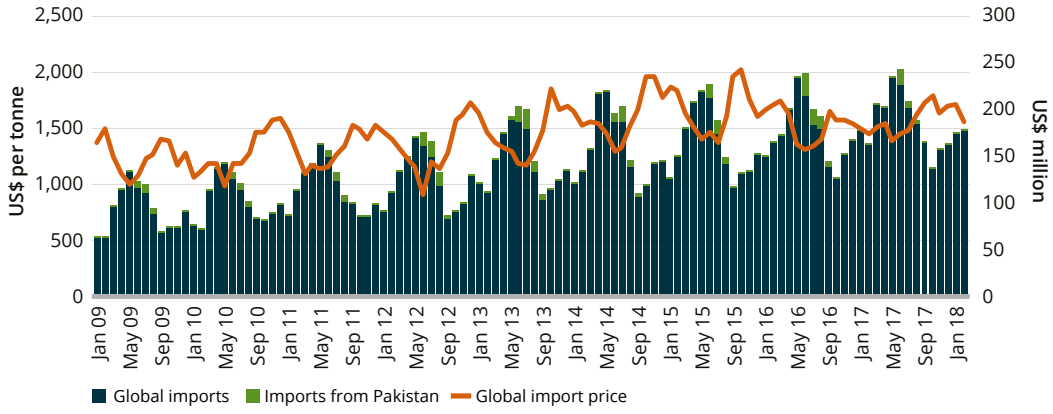

Figure 2.18 Mangoes: Value of global imports and imports sourced from Pakistan, 2009–18.

For some countries import data also includes guavas and mangosteens. Late 2017 and 2018 do not include all countries. Middle East countries' imports are deduced from export statistics.
Source: TradeData International.

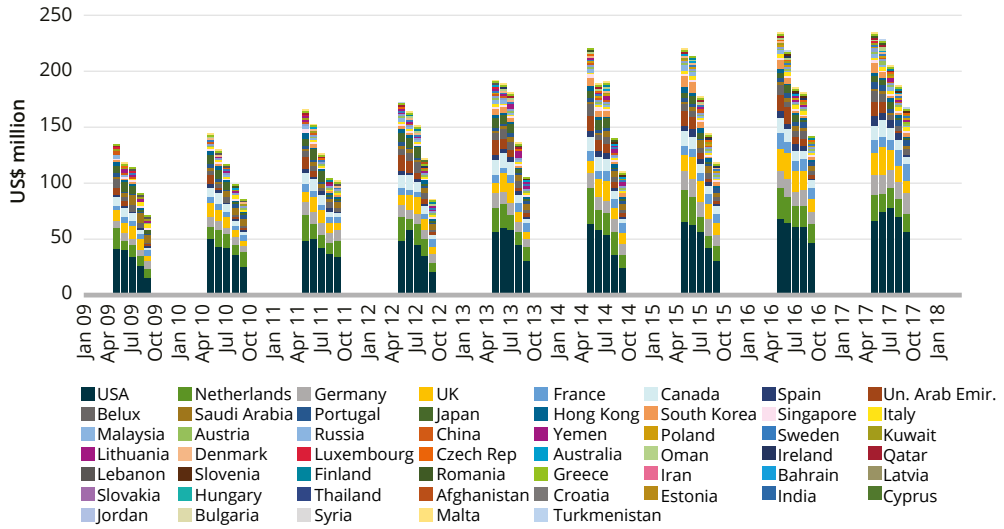

Figure 2.19 Value of mango imports for importing countries during the Pakistan supply season, 2009–18.

Source: TradeData International.

the UK and the UAE dominate and exports to both countries declined in 2017 leading to an overall decline in exports. However, there are many other countries that import Pakistan mangoes but in relatively small volumes. These are mostly in Europe and Asia and represent potential future export opportunities.

Pakistan's share of the global mango trade during its supply season peaked in 2012 and 2013 at between 8% and 12% (Figure 2.21). This has since declined to between 4% and 8% in 2017. As the global market has continued to grow in recent years, Pakistan has not kept pace with this growth.

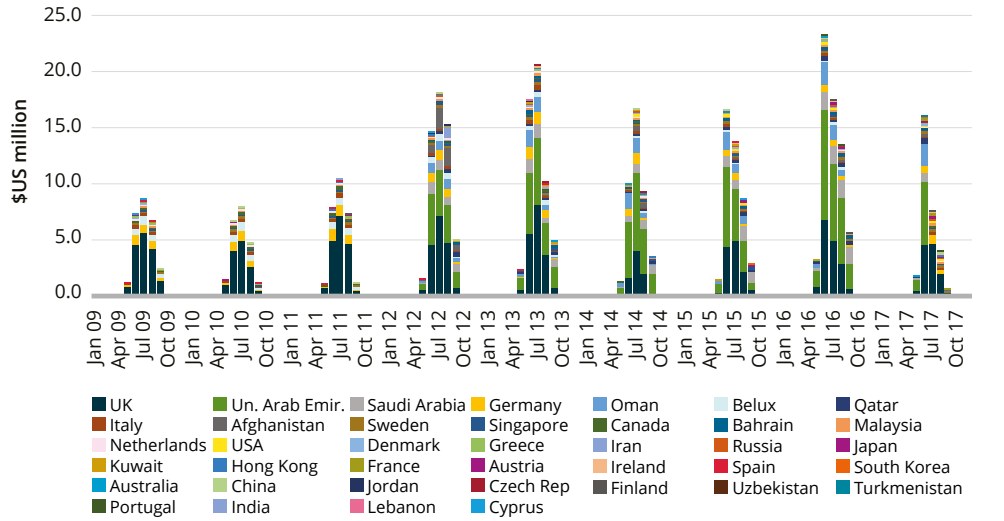

Figure 2.20 Value of mango imports sourced from Pakistan, 2009–17.

Source: TradeData International.

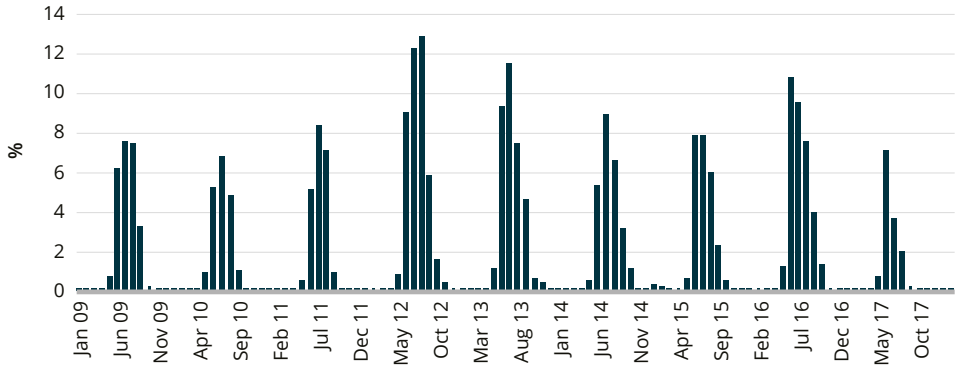

Figure 2.21 Percentage of global mango imports sourced from Pakistan, 2009–18.
Source: TradeData International.

RECOMMENDATION 2.8

It is recommended that Pakistan identify and target a range of countries that import mangoes during the Pakistan supply season with the aim of linking Pakistan exporters with importers from the targeted countries.

2.4.3.1 Lack of processing—comparisons with India

Pakistan mostly exports fresh mango fruit when it is in season, yet its neighbour India supplies dried mango and other processed products all year around (Figure 2.22). The lack of mango processing in Pakistan is restricting the ability of Pakistan to further increase mango exports.

2.4.3.2 USA market

The USA is the world's largest mango import market and neither Pakistan nor India are major suppliers to the market (Figure 2.23). The chart lists their export performance to the USA and shows:

- imports into the USA from India are growing rapidly but this is not the case from Pakistan—both are from a low base

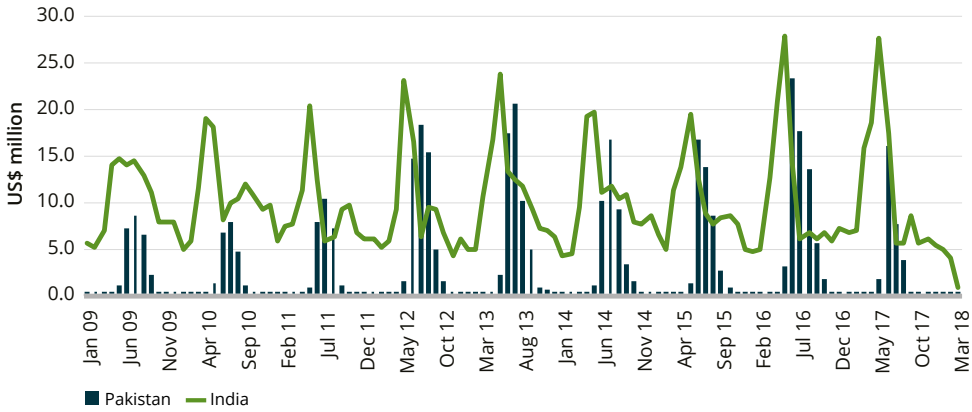

Figure 2.22 Value of Pakistan and India mango exports, 2009–18.
Source: TradeData International.

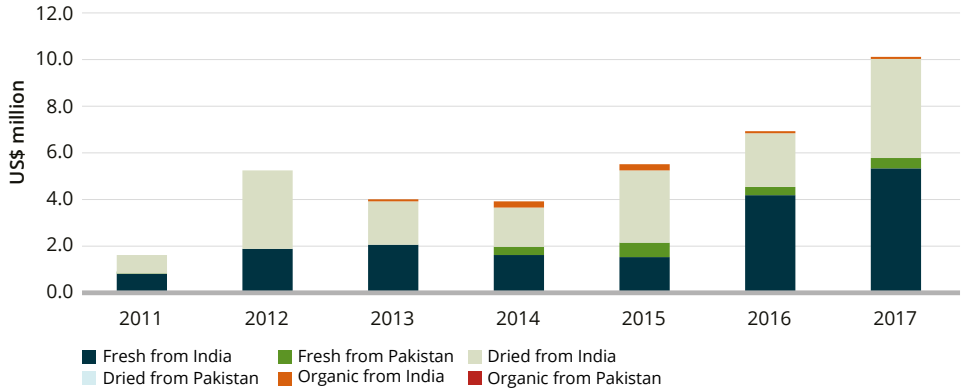

Figure 2.23 Value of Pakistan and India in the USA mango import market, 2011–17.
Source: TradeData International.

- the importance of processing (drying) of Indian mangoes before export which is not seen in Pakistan trade.

2.5 Conclusions

Pakistani exports of mandarins and mangoes are heavily concentrated into only a few countries, yet Pakistan also exports small amounts to many other countries. The analysis shows there are many potential export opportunities for Pakistan to consider for both fresh and processed fruit. Outside of the large import countries—USA, Western Europe, Russia and the Middle East—there are dozens of smaller import markets for both mandarins and mangoes. For example, China's mango imports are growing strongly, while Singapore and Hong Kong also have growing mango markets. For mandarins, potential opportunities are identified in Vietnam and the Philippines.

Historically, Pakistan has been a major exporter to the Middle East. Middle East markets are generally lower priced and have lower SPS requirements. There are many other potential markets for Pakistan where import demand is increasing and which offer higher prices. This highlights the importance of SPS, export promotion and other market access issues outlined in Chapter 5 as necessary for export success. It is not the lack of potential market opportunities restricting Pakistan exports, but the ability to promote and supply high-quality products, at the right price, that satisfy individual market SPS requirements. In addition, the lack of processing of fresh produce into other products is also hindering export performance.

3 Access to affordable credit

3.1 Introduction

Agriculture accounted for 18.9% of Pakistan's national GDP in 2017–18. The livestock contribution in value added was 58.9%, while the crop sector's share was 34.4% (Government of Pakistan 2018). There are 8.3 million farms in Pakistan (6.7 million are owner farms and the rest owner-cum tenant and tenant farms), involving 64% of the rural population directly or indirectly, and employing 44% of the labour force of the country. A farmer is classified as a small farmer in Pakistan if the size of his or her holding is 5 hectares or less of arable land. Owing to continuous fragmentation of land, the number of small farms has increased over time. While 68% of all farms were small farms in 1972, the figure had risen to 89.5% by 2010. Nearly 65% of all farms in 2010 had less than 2 hectares of land—up from 28% in 1972. At the same time, farming land has become increasingly concentrated in larger farms and 89.5% of small farms cover only 47.9% of the cultivated area.

The official statistics show that in Punjab, average real monthly income of the first quintile (i.e. the bottom 20% of households) increased from Rs4,991 in 2001–02 to Rs8,876 in 2015–16 (Table 3.1). In Sindh, the same comparison shows that real average income improved a little from Rs6,456 in 2001–02 to Rs6,945 in 2015–16. As almost all the small farmers belong to this quintile, these comparisons portray smallholders' mixed results in real income growth over this period, especially in Sindh.

Table 3.1 Real household income, quintile 1, 2001–02 to 2015–16.

	Real monthly household income (Rs)	
Year	Punjab	Sindh
2001–02	4,991	6,456
2010–11	5,459	5,296
2015–16	8,876	6,945

Source: Household Integrated Economic Survey, Pakistan Bureau of Statistics (2017).

Small farmers' output is typically low and does not leave sufficient funds to undertake farm operations according to agronomic recommendations. According to the Planning Commission of Pakistan, adequate availability of credit to all farmers is a precondition for the increased use of modern inputs such as fertilisers, improved varieties of seed and modern technologies (Planning Commission 2010). Yet, most credit surveys show that small farmers are unable to access credit from formal channels and remain heavily reliant on informal credit—relatives and friends, the middlemen or input suppliers (Irshad 2011).

The specific aim of the *Enabling agricultural policies for benefitting smallholders in the dairy, citrus and mango industries of Pakistan* (ADP/2010/091) project was to improve livelihoods of small farmers by developing options for enabling policies that can overcome policy-related constraints faced by smallholders in the dairy, mango and citrus sectors of Punjab and Sindh. The ultimate aim was to increase small farmer incomes and make Pakistan a more inclusive economy and society.

Section 3.2 provides a discussion of the current status of agricultural credit in Pakistan. Major issues and challenges in extending the outreach of formal credit to smallholders are discussed in Section 3.3. Policy recommendations for addressing these issues are outlined in Section 3.4. Section 3.5 concludes with a summary.

3.2 Credit for smallholders in Pakistan

3.2.1 Current status of agricultural credit

The *Loans for Agricultural, Commercial and Industrial Purposes Act, 1973* (Government of Pakistan 1973) provides the legal framework for all types of credit facilities for persons engaged in agriculture. The State Bank of Pakistan makes regulations to achieve the annual credit targets fixed in consultation with all stakeholders included in the Advisory Committee on Agriculture Credit (ACAC). Credit disbursement occurs through a network of specialised and commercial banks with nearly 11,000 branches across the country; over 4,000 of these branches deal in agricultural credit.

Previously, the public sector Zarai Taraqiati Bank Limited (ZTBL) was the main provider of agricultural credit. Now, its share has been reduced in relative terms from 56% in 2001–02 to 13% in 2017–18 (Table 3.2) due to the rising participation in the Pakistan agricultural credit market of commercial banks (CBs) in 1995, domestic private banks (DPBs) in 2001 and microcredit banks in 2011. The figures in Table 3.2 suggest that agricultural credit in Pakistan is progressing from the state-provided credit phase to the market-based credit phase.

In support of the government's prioritising of the agriculture sector, the ACAC sets annual indicative targets for agricultural credit disbursement for participating public sector and commercial banks. During 2017–18 this target was Rs1,001 billion, which was 42% higher than the previous year's disbursement

Table 3.2 Changing market structure of agricultural financing (% of market share).

	ZTBL	CBs	PPCBL	DPBs	MFBs	IBs	Total
2001–02	56	33	10	1	-	-	100
2014–15	19	51	2	21	6	1	100
2017–18	13	51.5	1.5	20	12	2	100

ZTBL = Zarai Taraqiati Bank Limited; CBs = commercial banks; PPCBL = Punjab Provincial Cooperative Bank Limited; DPBs = domestic private banks; MFBs = microfinance banks; IBs = Islamic banks.

Source: State Bank of Pakistan (2018).

of Rs704.5 billion. Out of the total target, Rs516 billion has been allocated to five major CBs, Rs125 billion to ZTBL, Rs200 billion to 14 DPBs, Rs15 billion to Punjab Provincial Cooperative Bank Limited (PPBCLs), Rs100 billion to 11 microfinance banks (MFBs), Rs20 billion to five Islamic banks (IBs) and Rs25 billion to 15 microfinance institutions (MFIs) and rural support programmes (RSPs) for financial year 2017–18 (Government of Pakistan 2018).

Credit disbursement in 2016–17 was almost equally divided between the farm sector (crops and fruits) and the non-farm sector (mainly livestock, fisheries and poultry). However, the shares of credit disbursement to smallholders were quite different between the two subsectors. Within the farm sector, credit disbursement to subsistence holdings (small farmers) accounted for 26% of total credit, while within the non-farm sector, credit disbursement to small farms was only 18% of the total credit.

While agricultural credit disbursement has been on the increase in recent years, demand for agricultural credit in Pakistan has been growing even more rapidly and has been estimated at around Rs2,000 billion, revealing a large shortfall in the availability of agricultural credit (Table 3.3).

3.2.2 Recent credit schemes for smallholders

In recent years, the following credit schemes have been launched by the lending financial institutions focusing on small farmers.

3.2.2.1 Financing scheme for small farmers (group-based lending)

To address the problem of lack of security available to smallholders, a group-based lending approach has been introduced in Pakistan. Under this scheme, loans are made to individual farmers through peer groups called small farmers groups (SFGs), where all the members guarantee the repayment of each other's loans and social pressure is used as the intangible collateral. The size of the SFG is usually around 5–15 members. The group is either organised by the bank itself or through an NGO. The bank provides a loan on the joint guarantee of the farmers of an amount not exceeding Rs200,000 for crop or non-crop activities and term loan facility for farm improvements. Only small farmers are members of SFGs (State Bank of Pakistan 2015).

3.2.2.2 Credit guarantee scheme for small and marginalised farmers

The State Bank of Pakistan also developed a credit guarantee scheme, funded by the federal government, encouraging financial institutions to lend to small farmers (owning

Table 3.3 Agriculture credit disbursement, 2009–10 to 2017–18.

Year	Target (Rs billion)	Disbursement (Rs billion)	Increase (%)	No. of borrowers (million)	Change (%)
2009–10	260	248	–	1.46	–
2010–11	270	263	6.0	1.45	–0.7
2011–12	285	293	11.4	1.96	35.2
2012–13	315	336	14.7	2.00	2.0
2013–14	380	391	16.4	2.15	7.5
2014–15	500	516	32.0	2.19	1.8
2015–16	600	598	15.9	2.38	8.7
2016–17	700	705	17.8	3.27	37.4
2017–18	1,001	970	37.6	3.46	5.81

Source: State Bank of Pakistan (2018).

5 acres of land in canal-irrigated and 10 acres in rain-fed areas) who do not have adequate collateral acceptable to banks, in order to meet their working capital requirements (State Bank of Pakistan 2015). Participating financial institutions have been assigned credit disbursement targets of Rs2 billion in 2017–18. The federal government provides a guarantee for the default risk for 50% of the loans disbursed to eligible farmers. The maximum size of the loan under this scheme is fixed at Rs100,000, for a maximum period of 1.5 years. Since its inception, more than 50,000 eligible farmers have been financed under this scheme.

3.2.2.3 Promoting financial innovation

The Financial Innovation Challenge Fund (FICF) was launched in 2014 to promote innovative rural and agricultural financial services. Currently, FICF is supporting 12 institutions in testing innovations such as agriculture value chain financing, warehouse receipt financing, green agricultural financing, Islamic microfinance, and the use of ICT solutions for agricultural finance and price information. The State Bank of Pakistan is also promoting value chain financing for six main value chains, including beef and dairy (the others are potato, tobacco, Basmati rice and aquaculture). Under a pilot project, Rs5 billion were disbursed to around 4,500 farmers. The target of agricultural value chain financing for the financial year 2018 is Rs10 billion (State Bank of Pakistan 2015).

3.2.2.4 Crop loan insurance scheme

A crop loan insurance scheme had been introduced in 2008 to mitigate the default risk of small farmers and to provide repayment assurance to banks, especially in the case of natural disasters. The federal government bears the cost of the annual insurance premium of farmers with a landholding of up to 25 acres and growing any of the major crops (wheat, maize, cotton, sugarcane and rice). Since its inception, more than 3.8 million borrowers have benefitted from this scheme.

As the ACIAR project ADP/2010/091 focused on only citrus, mango and dairy farmers, the crop loan insurance scheme may appear to be irrelevant to this project. However, citrus, mango and dairy small farmers usually have mixed farming operations, in which they also grow some of the crops covered under this scheme.

3.2.2.5 Livestock insurance scheme

Despite its importance for the country as well as for individual farmers, the livestock sector's share in agricultural credit in Pakistan is around 20%. Limited availability of risk mitigating or insurance products is one of the main reasons for the low provision of credit for livestock. To encourage lending institutions to provide credit to this sector, a livestock insurance scheme was launched in 2013. The scheme was developed by the State Bank of Pakistan in collaboration with the Securities and Exchange Commission of Pakistan, banks, insurance companies, and provincial livestock and dairy departments, to protect small farmers in case of loss of animals from natural causes or disease or natural disaster, such as flood, windstorm or accident. The banks obtain insurance of all livestock loans up to Rs5 million for the purchase of animals. The government bears the cost of the insurance premium for small farmers. Farmers owning up to 20 cows/buffaloes and 50 fattening cattle have been classified as small farmers for this scheme (Government of Pakistan 2015).

3.2.2.6 Microcredit for smallholders

Since 2011, microfinance has been growing steadily in Pakistan. During 2014–15, a total of Rs30 billion was disbursed by microfinance banks. By the end of 2017, total credit disbursed by microfinance institutions had increased to Rs203 billion, indicating strong demand for microfinance in Pakistan (Government of Pakistan 2018). Several organisations, such as the rural support program network (RSPN), have also developed their own networks for providing microfinance to small and marginalised farmers. The RSPN model is primarily based on community organisations and group lending. The Pakistan

Poverty Alleviation Fund (PPAF) is another organisation extending substantial amounts of credit for poverty alleviation activities. A study by the University of Leicester (Hina et al. 2012) reported, however, that outreach of microfinance in Pakistan was mainly in urban areas. In a recent study of microfinance in several developing countries, the Asian Development Bank Institute has documented the growing participation of commercial banks in providing microfinance to small rural enterprises (Subhanij 2016). Initially, the commercial banks did not consider it worthwhile to enter microfinance business because the opening of branches in rural areas was much too costly. But, having witnessed the rapid growth of microfinance, commercial banks have developed innovative business models for entry into this market. Instead of opening their own branches, commercial banks in India, Mongolia, Thailand and Turkey have teamed up with successful microfinance providers who act as their agents. This business model should be of interest to Pakistan.

3.2.2.7 Branchless banking

Historically, a major reason for low access to financial services in Pakistan was the cost and time spent by low-income people to reach distantly located bank branches for carrying out their financial transactions. Women in rural and remote areas face additional constraints such as lack of mobility largely for cultural reasons. Technology has however been changing the dynamics of retail banking in Pakistan. Thanks to branchless banking, people can now access basic financial services at agent shops which are close to their homes. Eight branchless banking providers have developed a network of 125,000 agents to provide services including payment of bills, fund transfers, loan repayments and others. These agents performed a total of almost 192 million transactions worth Rs802 billion during the year 2013. By the end of 2017, the total number of branchless banking agents had increased to 405,671 and the total amount of credit disbursed through this mechanism had increased to Rs17.3 million (Government of Pakistan 2018).

3.2.2.8 Prime Minister's agriculture package

The then Prime Minister of Pakistan announced, at the Farmer's Convention held on 15 September 2015, a relief package for small farmers including direct cash support and provision of soft agriculture loans. This Rs341 billion package included some new schemes, as well as schemes already in operation during and before the 2015–16 Federal Budget.

Important points related to agricultural credit are given below:

- Solar tube wells would be provided on 'mark-up free' loans to farmers who own up to 12.5 acres of land. The mark-up of seven years would be paid by the federal government with a cost of Rs14.5 billion.
- The government would provide a 50% guarantee scheme on loans given by commercial and microfinance banks to farmers. Under the scheme, 300,000 small farmers owning 5 acres of irrigated land or 10 acres of rain-fed land can obtain a loan of Rs100,000 without collateral. The scheme will cost the government Rs30 billion.
- The government will bear the cost of premium against loans sought for crops. The measure will entail an expenditure of Rs2.5 billion and benefit some 700,000 small farmers.
- The State Bank of Pakistan will seek to reduce the mark-up rate on agriculture loans by two percentage points, providing a benefit of Rs11 billion per annum to farmers (Government of Pakistan 2015).

3.2.2.9 National Financial Inclusion Strategy

The Government of Pakistan launched a comprehensive National Financial Inclusion Strategy in May 2015 (Government of Pakistan 2015). Implemented by the State Bank of Pakistan together with support from private sector stakeholders, the Financial Inclusion Strategy is a specific initiative for

implementation of the Pakistan Vision 2025, which embraces the goal of achieving inclusive economic development in the country. A decade ago in 2008, the Government of Pakistan had launched a Financial Inclusion Program with DFID (UK) support, which consisted of several initiatives for development of financial capacity, financial innovation and financial market infrastructure. This was followed by the establishment of a specialised Microfinance Credit Information Bureau in 2009 and a nationwide financial literacy program launched in 2012.

3.2.2.10 Empowerment of Kissan through E-Credit Scheme

The Government of Punjab has recognised that high fluctuation in commodity prices, increase in input costs, exploitation by 'commission mafia' and the lack of hassle-free financing from financial institutions has had a disastrous impact on financial viability of small farmers. Accordingly, the Government of Punjab launched the E-Credit Scheme in 2016 under the Empowerment of Kissan through the Financial and Digital Inclusion Program. Under the E-Credit Scheme, all farmers, including farmers with land holding of 12.5 acres, are eligible for interest-free crop financing loans, and around 70% of the loan is to be disbursed to farmers with no previous credit history. The loan disbursements are made to the farmer in three instalments of 40%, 30% and 30%, respectively. The purpose of disbursement in instalments is to ensure that farmers are utilising borrowed funds for agricultural activities and not for their personal needs (Government of Punjab 2015).

3.3 Major issues limiting smallholder access to credit

3.3.1 Low financial inclusion and financial literacy

Financial inclusion and financial literacy in Pakistan remain low by regional and global standards. In order to address the challenges of low levels of financial inclusion, Pakistan launched the National Financial Inclusion Strategy in 2015 (Government of Pakistan 2015). The strategy aims to enhance formal financial access to 50% of the adult population by 2020. Furthermore, lack of access to financial services is far more widespread among the rural population and women in Pakistan. Figures in Table 3.4 show that people in Pakistan have much lower engagement with financial institutions than is the case in South Asia as a whole, and that females in Pakistan have far lower engagement with financial institutions than Pakistani males, and than females in the South Asian region.

Table 3.4 Global Findex 2017: financial access and usage.

Category	Pakistan (%)	South Asia, average (%)
Borrowed from any source	49.8	48.7
Borrowed from a financial institution, 2011	1.6	8.7
Borrowed from a financial institution, 2014	1.5	6.4
Account at a financial institution, 2014	13.0	47.0
Account at a financial institution, 2017	21.0	70.0
Account at a financial institution, 2014, male	21.0	55.0
Account at a financial institution, 2017, male	35.0	75.0
Account at a financial institution, 2014, female	5.0	38.0
Account at a financial institution, 2017, female	7.0	64.0

Source: World Bank (2017).

3.3.2 Low credit disbursement for livestock and dairy farmers

Livestock and dairy farming is now a major component of the non-farm sector of Pakistan. Livestock is central to the livelihood of the rural poor and plays an important role in poverty alleviation in Pakistan. Within the farm sector (crops and fruits), credit disbursement to small farms (i.e. subsistence holdings) accounted for 26% of total credit disbursement in 2016–17. Within the non-farm subsector (livestock, fisheries and poultry), the credit disbursement share of small farms was only 18% of total credit, implying that the lion's share of credit disbursed in this subsector went to larger farmers (Government of Pakistan 2018). Thus there is a need to increase credit disbursement to small farmer households working in livestock, fisheries and poultry.

3.3.3 High transaction costs of lending to smallholders

The high transaction cost of lending to small farmers has always been a challenge for financial institutions, not just in Pakistan but around the world. Although the average size of agriculture loans in Pakistan is around Rs400,000, the maximum loan of some of the guaranteed loan schemes for small farmers is fixed by the Government at Rs100,000. From the banks' standpoint, however, the administrative and procedural requirements are the same for all loans, irrespective of their size. Thus, as a proportion of the amount of a loan, the transaction cost falls as size of the loan increases (Amjad and Hasnu 2007). To add to the problem, the transaction cost of lending is also high in Pakistan due to inadequate and unclear records of agricultural property—especially in the case of smallholders.

The result is that when banks charge a high rate of interest to recoup the transaction cost from the borrowers, smallholders (who deserve to be charged less due to their lower incomes) are faced with high rates of interest. This is on top of already-high interest rates in Pakistan, due to the high rates of inflation. As Mehmood et al. (2013) found, high interest rates have become one of the major concerns for small farmers, and 71% of farmers complained that rates charged by the banks were too high.

3.3.4 Lack of collateral for credit security

All banks prefer lending to borrowers who have sufficient marketable collateral to be used as a guarantee against the risk of default. In Pakistan, agricultural passbooks (official records of agricultural land) are used as a major source of collateral (i.e. around 55% of agricultural credit disbursement). Thus, a farmer without such collateral is a non-bankable farmer, and most smallholders fall into this category, as they have no land or not enough land. Unacceptable or inadequate collateral is the most important impediment to bank borrowing for small farmers (Akram 2008). Although in recent years other forms of collateral have gained acceptance, such as personal surety or pledge/hypothecation, ownership of land is still the single most important determinant of access to formal agricultural credit in Pakistan (Amjad and Hasnu 2007).

Even for those farmers who have land that may be used as potential collateral for borrowing from banks, the produce index unit (PIU), which is used by all banks for determining the maximum size of loan they would offer a farmer, causes further problems. The PIU reflects the productive capacity of land and is an official estimate of gross value of produce on each unit of land by soil type. This means that a bank's estimate of the maximum borrowing capacity of a farmer is always below the value of his land, not based on market value but on the PIU per acre. Within this upper limit, banks are also advised by the State Bank of Pakistan to be mindful of the price at which a farmer's land could be speedily disposed of, in the event of a loan default.

First established in Pakistan in 1947 for determining objective compensation for Muslim refugees for land they had left behind in India after the partition, the value of each

PIU represents a safe proxy for market value of land. It is updated periodically by the State Bank of Pakistan before being conveyed to all banks for lending guidance. In recent years, the value of the PIU has been adjusted several times. For example, its value was increased from Rs400 to Rs1,200 in 2007, from Rs2,000 to Rs3,000 in 2015, and from Rs4,000 to Rs5,000 in 2017. Critics point out that because the PIU value is always much lower than the market value of agricultural land, determining borrowing capacity of farmers according to PIU puts farmers at a severe disadvantage.

Those who cannot get credit from formal sources are forced to rely on informal sources. Informal credit markets are known to be interlinked (Irshad 2011). Reliance on informal sources of credit (from landlords, contractors or merchants) also forces borrowers to sell their agricultural produce (milk, vegetables or fruit) to the creditors at concessional prices. The lenders also exert social and political pressure on the borrower at the time of elections or other such events. Against this background, government intervention, such as group lending schemes, credit guarantee schemes and crop loan insurance schemes noted above, can be highly beneficial for small and marginalised farmers.

3.3.5 Cumbersome lending procedures

A number of studies have found that most farmers consider the banks' procedures to be too lengthy and cumbersome (Bashir and Azeem 2008; Akram 2008; Mehmood et al. 2013). Since collateral is a prerequisite for all kinds of loans, farmers are required to submit documentation proving acceptable tangible collateral. In most cases, the agricultural passbook provides the information about the land being used as collateral. This instrument is issued by the post office, filled by the revenue department and verified by the bank concerned. This is a cumbersome procedure which costs farmers not only a considerable amount of time and effort, but also sometimes 'speed money' (a bribe). Several researchers have noted bribery in the system to overcome or circumvent the cumbersome procedures (e.g. Akram 2008; Mehmood et al. 2013).

3.3.6 Unsuitable lending products

Banks typically offer standardised lending products, like general purpose production loans, that often do not meet the specific needs of all farmers, especially small farmers. Unlike the banks, informal lenders typically provide a line of credit based on the estimated value of the marketable produce of the borrower. The price of this produce and the timing of utilisation of the credit line are largely determined by the informal lenders, allowing them to maximise their profit at the cost of the borrowers. The state financial institutions and commercial banks need to develop innovative financial products to compete against the informal lenders.

3.3.7 Lack of information and guidance

General education and literacy rates in Pakistan are low. The Findex ranking noted earlier also shows this problem. Small farmers are also poorly informed about lending products and do not know how to meet the documentary requirements of the banks or how to fill in these documents. A recent study estimated that 82% of farmers lack financial knowledge and need guidance, but are not provided with that guidance (Mehmood et al. 2013).

3.3.8 Lack of cooperation of bank staff

In the past the State Bank of Pakistan followed the mandatory agriculture lending policy, but this has now been abandoned and the share of private sector banks in total lending has grown over time. However, the State Bank of Pakistan does not dictate that individual banks have to provide credit to small farmers. This situation creates an opportunity for the banks to work with only influential and large farmers. This business environment is reflected also in the lack of cooperation of bank staff with small farmers. Bashir and Azeem (2008) found that about 45.6% of small farmers were not satisfied with the behaviour of bank officials. Thus, there is a need for the Pakistan Government

and the State Bank of Pakistan to improve the attitude and behaviour of bank staff towards rural borrowers, especially smallholders (many of whom are illiterate and easily intimated by bank staff and procedures).

3.3.9 Lack of credit in time of need

Many times farmers are unable to get a loan on time due to incomplete paperwork or lengthy bank procedures. Since farm operations are time-bound, any delay in the availability of loans has an adverse impact on productivity. In such circumstances, small farmers turn to more informal and convenient avenues of credit available from money lenders or middlemen. Inordinate delay in the availability of bank loans is, therefore, an important factor that contributes towards poor agricultural productivity growth. About 55% of farmers in a study stated that there was a delay in credit disbursement which may be attributed to the clerical procedures of the bank (Mehmood et al. 2013).

3.3.10 Lack of suitable credit for women

Access to credit is a significant determinant of women empowerment. The field study conducted by project ADP/2010/091 revealed that nearly 70% of females in Sindh and 85% in Punjab do not take credit due to high interest rates, complicated paperwork or slow processing of loan applications. The remaining women acquire credit that is used for meeting different domestic needs, such as for buying sewing machines, marriage of children and purchase of livestock. For example, some women said that they had borrowed funds from the Sustainable Access to Financial Capital Opportunities (SAFCO) at the rate of 13% p.a. interest for these purposes.

3.4 Summary and conclusions

The specific aim of project ADP/2010/091 was to develop policy options for addressing policy-related constraints faced by smallholders in the dairy, mango and citrus sectors of Punjab and Sindh. The ultimate goal of the project is to improve livelihoods of smallholders by connecting them with markets and modern supply chains on more remunerative terms. Adequate availability of credit for all farmers is a precondition for the increased use of modern inputs such as fertilisers, improved varieties of seed, and modern technologies and practices. Yet most credit surveys show that small farmers are unable to access credit from formal channels and remain heavily reliant on informal credit, from relatives and friends, middlemen or input suppliers.

This chapter has identified the major constraints that are responsible for the current unsatisfactory position in access to credit. Several initiatives taken by the Pakistan Government and the State Bank of Pakistan have also been noted. In spite of these initiatives, however, small farmers in general, and women farmers in particular, are unable to access credit from banks or other formal financial institutions when they most need it. As a result, these farmers turn to the informal sources of credit—middlemen and money lenders—who exploit the farmers with high rates of interest.

Pakistan needs to develop more innovative solutions to this problem, because without access to formal credit at affordable rates, livelihoods of small farmers will remain stuck where they have been for many years. On the other hand, provision of affordable formal credit would unleash a new wave of innovation—experimentation in horticulture and dairy farming—improving the livelihoods of millions of small farmer households. In addition, Pakistan would be able to expand exports of mangoes, citrus, and milk and milk products into neighbouring countries to the north and west that are deficient in these products and have the purchasing power to import good quality foods.

The recommendations below are therefore vital for Pakistan's economy and its goal of creating a more equal and inclusive society.

RECOMMENDATION 3.1

Increase the PIU values to better reflect market prices of land and update PIU values annually to ensure PIUs are always up to date. Set separate annual targets for credit disbursement specifically to small farmers in farm and non-farm sectors of agriculture, and seek annual progress reports from all financial institutions engaged in agricultural lending and microfinance.

Motivation

The use of PIU values sets upper limits for agricultural loans from banks at artificially low levels. In the current system of credit disbursement, there is also an implicit incentive for financial institutions to cater for large borrowers. Credit disbursement targets are set in total amount of credit, irrespective of how many clients are served by it. Thus, the banks can meet their targets without extending their outreach. It is also cheaper and less risky for a bank to meet a given disbursement target by concentrating its lending on a small number of large borrowers, rather than providing credit to a large number of small farmers. This implicit incentive for banks should be neutralised to allow credit disbursement to smallholder farmers to grow.

RECOMMENDATION 3.2

Increase the credit disbursement share of the livestock subsector to reflect its high economic and social importance in Pakistan. Make up-to-date assessments of credit requirements of small farmers in livestock, dairy and fruit at various stages of their farming cycles and ask banks to design appropriate credit instruments to match the assessed credit demand.

Motivation

While the non-farm subsector (livestock, fisheries and poultry) was responsible for 51% of total agricultural credit disbursement, within the non-farm sector credit disbursement to small farms was only 18% of total credit, indicating that the lion's share of credit disbursed in this subsector went to large farmers. Furthermore, as credit needs of small farmers can be seasonal, financial institutions must be fully aware of credit demand cycles and should tailor credit products accordingly.

RECOMMENDATION 3.3

Provide encouragement and incentives for financial institutions that do not currently provide credit to small farmers to develop partnerships with microfinance institutions to extend their outreach into small farmer communities.

Motivation

In recent years, commercial banks in several developing countries, including India, Mongolia, Thailand and Turkey, have teamed up with successful microfinance providers to increase the banks' outreach into rapidly growing microfinance markets. Instead of opening new bank branches, which are much too costly for this type of business, commercial banks have

developed innovative models of relationship banking in partnership with existing microfinance institutions. Pakistan's commercial banks need to adopt similar innovations, creating win–win outcomes for both the banks and small farmers.

RECOMMENDATION 3.4

To complement branchless banking and ICT-based credit facilities, the State Bank of Pakistan should direct all commercial banks to open scaled-down rural branches for serving rural populations, especially small farmers.

Motivation

High transaction costs of bank loans to small farmers have been a major constraint on the banks' ability to provide credit to smallholders. Branchless banking and ICT-based credit facilities have been introduced already in Pakistan with success. Overseas experience, especially in Indonesia, suggests that scaled-down rural bank branches can also reduce transaction costs and enable banks to provide formal credit to smallholders.

RECOMMENDATION 3.5

Set higher growth targets for agricultural value chain financing as a part of the Pakistan Vision 2025, by focusing particularly on small farmers, including women, in dairy, citrus and mangoes; and encourage greater involvement of smallholder producer organisations, contract farming, rural support programs, and NGOs in value chain financing.

Motivation

Although value chain financing has been introduced already in Pakistan, a more proactive and small-farmer-oriented approach, for example, using the banner of the Pakistan Vision 2025, would increase participation of small farmers in value chain financing. In many countries, private sector stakeholders and NGOs have become involved in facilitating the formation of small farmers' cooperatives or producer companies that are able to secure better access to credit and more favourable terms for marketing. This needs to happen in Pakistan too.

RECOMMENDATION 3.6

Strengthen and broaden the coverage of financial literacy campaigns by targeting smallholders, including women, initially as a pilot project in selected areas of Punjab and Sindh, and then mainstream after learning from the pilot projects. Involve smallholder organisations, such as rural support programs and credit cooperatives, in this initiative. Encourage collaboration with the private sector and NGOs to conduct workshops and demonstrations.

Motivation

Outcomes of financial inclusion and financial literacy as measured by the World Bank's Global Findex are low in Pakistan, although Pakistan has already launched a nationwide financial literacy program. Currently, small farmers have little knowledge of financial instruments and have little trust of financial institutions. Better levels of financial literacy would improve both their understanding of financial products and their trust in financial institutions.

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4 Extension services for smallholders

4.1 Introduction

As noted earlier in this monograph, the vast majority of Pakistan's farmers are smallholders, owning less than 5 hectares of arable land, whose livelihoods depend mainly on agriculture. Owing to continuous fragmentation of land, the number of small farms has been increasing rapidly from 68% of all farms in 1972 to 89.5% by 2010. In the dairy industry, 74% of cows and 68% of female buffaloes are held on farms with less than 5 hectares of land. Orchards with an area of less than 5 hectares account for more than 85% of all orchards. Low productivity of land and labour in Pakistan's agricultural sector has been a concern for policymakers for many years. For example, the Panel of Experts advising Pakistan Planning Commission on agriculture marketing and post-harvest management pointed out that after almost four decades of the 'elite farmer' strategy, stagnation in land and labour productivity was a major concern in Pakistan, and that Pakistan's agricultural productivity could be increased if the small and medium farm sectors were properly supported (Government of Pakistan 2009).

Growth in household incomes of small farmers has also been poor and even negative for some households over the past decade. Data from the Household Income and Expenditure Survey of Pakistan in Table 4.1 show real monthly incomes of rural households in the first quintile (bottom 20% by income) for 2005–06 and 2015–16. We assume all small farmers fall into the first quintile. These figures show that:

- while the income of quintile 1 households increased in Punjab at the rate of 2.4% per annum between 2005–06 and 2015–16, it decreased at the rate of 1.2% per annum in Sindh during these years
- the composition of household income also changed differently in the two provinces; while in both provinces wages and salaries contributed 40.5% of household income in 2005–06, in 2015–16, share of wages and salaries decreased

Table 4.1 Real household monthly income (Pakistan Rupees), rural quintile 1, 2005–06 and 2015–16, 2005–06 prices*.

	2005–06	2015–16	Change (% p.a.)	% share in total household income		
				2005–06	2015–16	Change (%)
Punjab						
Wages and salaries	2,525	2,824	1.1	40.5	35.7	–4.8
Crop production	1,396	977	–3.5	22.4	12.4	–10.0
Livestock	808	1,296	4.8	13.0	16.4	3.6
Other non-agricultural	481	919	6.7	7.7	11.6	3.9
All other income	1,020	1,892	6.4	16.4	23.9	7.5
Total	**6,230**	**7,907**	**2.4**	**100.0**	**100.0**	
Sindh						
Wages and salaries	3,178	3,518	1.0	40.5	50.4	9.9
Crop production	3,082	1,760	–5.4	39.2	25.2	–14.0
Livestock	787	713	–1.0	10.0	10.2	0.2
Other non-agricultural	194	131	–3.8	2.5	1.9	–0.6
All other income	614	859	3.4	7.8	12.3	4.5
Total	**7,855**	**6,982**	**–1.2**	**100.0**	**100.0**	

Source: Pakistan Bureau of Statistics (2016).

to 35.7% in Punjab, but increased to 50.4% in Sindh

- the contribution of income from 'crop production' decreased in both provinces, but by a higher margin in Sindh, where it fell to almost 25%
- the contribution of income from livestock increased in both provinces, but it increased by nearly 4% in Punjab and by only 0.2% in Sindh
- in Punjab, the share of 'other non-agricultural' income also increased by 3.9%, but in Sindh it went down by 0.6%
- the contribution of 'all other income' increased in both provinces, but again by a larger margin in Punjab than in Sindh.

As a result of these changes, incomes of quintile 1 households were higher in Punjab than in Sindh in 2015–16, whereas the situation was the opposite 10 years ago. Income from crops and livestock makes up on average 28.8% of total income of these households in Punjab and 35.4% in Sindh. Reliance on wages and salaries is much higher in Sindh (50.4%) than in Punjab (35.7%). The contribution of 'all other income' (which most likely includes domestic and foreign remittances) is almost double in Punjab (23.9%) compared to Sindh (12.3%), because a lot more workers from Punjab are working abroad. Remittances from overseas are an important source of income for many Pakistani households. According to the Pakistan Economic Survey 2017–18 (Government of Pakistan 2018), during 2017 a total of 261,849 workers from Punjab were working abroad (mainly in Dubai and Oman)—the highest number among all provinces, followed by 107,366 workers from Khyber Pakhtunkhwa. The other provinces do not appear to have large numbers of workers overseas.

It is also clear from the figures in Table 4.1 that sources of rural household income at the bottom end of income distribution are highly diversified, as non-agricultural income including wages and salaries, and remittances and fiscal transfers, make up a significant share

of household income. An important policy implication of this feature is that small farmers need advice, training and policy support not only on crop production or livestock, but also on other sources of income, particularly for rural non-farm small businesses. At present, extension agents are typically narrowly trained in only crops or animal husbandry. Helping small farmers in diversifying their livelihoods remains a challenge for extension agents.

Consistent with the aims of the Pakistan Vision 2025 (Planning Commission 2014), which include promoting inclusive growth and bridging yield gaps between smallholders and progressive farmers, ACIAR project ADP/2010/091 has developed policy recommendations for improving livelihoods of smallholders. The project identified the lack of extension services as a major constraint facing these smallholders, together with the lack of access to affordable formal credit, lack of access to markets and supply chains at remunerative terms, the need of smallholder farmer organisations for better bargaining power, and a need for empowerment of women in agriculture. This chapter deals with improving access to extension services.

As noted in the opening chapter of this monograph, global food consumption patterns are rapidly changing due to a combination of rising incomes and urbanisation (IFAD 2016). Demand for starchy staples and rice is giving way to higher demand for fruit, vegetables, livestock and dairy products, and fish and poultry. The new consumption patterns are also changing agricultural production patterns in the Asia-Pacific region, moving away from cereal or grain-based production towards higher value production of livestock and dairy products, poultry and fish. Thus, new opportunities are opening up for smallholders to earn higher incomes by engaging with modern food supply chains for these products.

The engagement of smallholders with modern supply chains is not likely to occur automatically, however, because up until now smallholders have had minimal engagement with agricultural markets, and have instead relied on intermediaries (middlemen, contractors and commission agents) to sell their produce. Smallholders now need to learn how to engage with modern supply chains, which prefer not only to buy in bulk to keep transaction costs lower, but also demand strict compliance with stringent sanitary and phytosanitary (SPS) food safety standards. It is highly unlikely that small farmers can lift their capabilities on their own to succeed in modern food supply chains; extension services must enable smallholders by teaching them new skills before they can succeed in the new market environment.

Extension services must educate small farmers about new technologies and farm practices that can increase productivity of animals and fruit trees, leading to higher incomes. Indeed, the fundamental purpose of agricultural extension services must be to equip farmers with basic agricultural education to improve their capabilities by adopting new technologies and farming practices. Prearranged and systematic communication with farmers is an integral feature of extension services (Farooq et al. 2010, 2005).

At the heart of the rationale for agricultural extension services lies the three-fold recognition that: (a) agricultural technologies, techniques and inputs are always evolving; (b) agricultural productivity can be increased by judicious use of these inputs and technologies; and (c) small farmers must be helped in the process of learning how to use these inputs and technologies. As Qamar (2005) warns in an FAO report: 'Cosmetic changes to the existing national extension services system will be of little benefit, as will be the repeated training of staff in stereotyped agricultural subjects. Just as well beat a dead horse.'

International experience reviewed in Section 4.3 confirms that governments in many countries have implemented policies for the modernisation of their extension services in recent years. In many cases, the mission of extension services has been broadened to

include not only new information, but also to educate and train farmers in the judicious use of modern inputs and to promote farmer self-help groups or networks for bulking up their bargaining power. Enabling small farmers to engage gainfully with modern supply chains has become the new mission of extension services. In turn, this has made extension services more demand driven, in contrast to the past practice of transferring 'knowledge' to the farmers. Additionally, extension services are also becoming more inclusive, by catering not only to large commercial farmers, but also smallholders and women in agriculture. Importantly, governments in many countries are investing additional resources in staffing and training extension service personnel, and national governments in many countries are involved in supporting the modernisation of extension systems.

4.2 Extension services in Punjab and Sindh

4.2.1 Punjab

In Pakistan, agricultural extension services have always been the responsibility of provincial governments. In 2001, the devolution of power gave greater role to district administrations in the planning and execution of development projects and associated extension services. Having tried district-based administration for a decade, however, provincial governments concluded that decentralisation of extension services had not worked well, and both Punjab and Sindh have re-centralised administration of extension services from district administrations.

Punjab is the largest province of Pakistan and accounts for 83% of the nation's cotton, 80% of wheat, 97% of fine aromatic rice, 63% of sugarcane, 95% of potato and 78% of maize. Amongst fruits, Punjab has a 66% share of the national mango production, and 95% of citrus. The Agriculture Department of the Government of Punjab has a large force of extension service personnel comprising more than 600 agriculture officers and approximately 4,000 field assistants.

The Directorate General Agriculture (Extension and Adaptive Research) works under the umbrella of the Department of Agriculture and maintains links with the district administration on agricultural extension matters. This Directorate is responsible for providing extension services in crops and horticulture subsectors. Its role includes transmitting information to growers about modern agricultural inputs, technologies and techniques; propagation of pedigree nursery plants of fruits at government nurseries for distribution to growers; connecting growers with the research wing of the provincial government; conducting surveys, and other collection of data; and helping farmers in taking remedial measures against pests and diseases.

In 2015, the Punjab Department of Agriculture implemented a new system of extension services at a total cost of Rs4,528,451 million—*Extension Services 2.0 Farmer Facilitation through Modernised Extension*—as the flagship program of the Punjab Agriculture Sector Plan 2015–2020 to transform Punjab's agriculture. The official rationale for introducing this flagship program was to overhaul the agricultural extension system to respond to burgeoning problems with respect to recent advances in agriculture. Even a dedicated dress code was introduced for extension services staff to provide them with a clear identity. In-service agriculture training institutes, the Regional Agriculture Development and Economic Centre and an adaptive research system team were given the task of improving the knowledge frontiers of the extension staff.

A project management unit was set up to facilitate coordination, monitoring, and implementation of *Extension Services 2.0*. While the primary focus of *Extension Services 2.0* is on the crop sector, its broader focus includes helping all farmers (including small farmers and women) and making economic growth more inclusive. An agricultural helpline has been established providing farmers toll-free

telephone support (0800-15000 and 0800-29000) to acquire information on their urgent and emerging issues.

There is a separate department of extension services for livestock and dairy in Punjab. The Punjab Livestock and Dairy Development Department (PLDDD) has two Directors-General: one for research and one for extension. The PLDDD released a new livestock policy in 2015 under the banner of '9211 Virtual Government System'. The focus of the new policy is on prevention of disease rather than on curing sick animals. A key feature of the new policy is an ICT-based database of livestock farmers and dairy animals in Punjab, covering 25,892 villages, 3.3 million farmers and 50.6 million animals. This database helps in monitoring animal health and planning of vaccination campaigns. The PLDDD now has a database of 10,000 milkmen in the province that is used for extending cheap milk-processing technologies to the milkmen, along with the development and maintenance of a safe cold chain. PLDDD has also developed a helpline (0800-78686) for providing livestock-related information to farmers.

4.2.2 Sindh

Agricultural extension is now under the provincial government, as it was before devolution in 2001, except at the subdivisional level.

In 2001, under the Sindh Local Government Ordinance 2001, the Agricultural Extension Service in Sindh was decentralised and placed under the District Nazim and District Coordination Officer. New posts of Execution District Officer (EDO) (Agriculture) were created at District level and six departments (i.e. Agricultural Extension, On-Farm Water Management, Forest, Livestock, Poultry, and Fisheries) were kept under the EDO. At the *Taluka* level, the supervision of agriculture officers and field assistants was assigned to the newly created deputy district officers.

The devolution experiment of 2001 did not work quite as expected and came under heavy criticism for lack of coordination among districts and between district administration and the provincial government. Accordingly, this model of administration was changed after the repeal of Sindh Local Government Ordinance 2001 and the revival of *Sindh Local Government Ordinance 1979 Act 2011* (*Sindh Act No. XXIV of 2011*). The erstwhile deputy district officers are working as assistant directors, agriculture extension in their respective *Talukas* and the post of EDOs (Agricultural Extension) at Karachi, Hyderabad, Mirpurkhas, Larkana and Sukkur were converted into the posts of divisional directors with the same budget of EDO and staff position at HQ level. The posts of EDOs of the remaining districts were converted into the posts of Additional Directors, Agriculture with the same budget provision and staff position of the EDO. Since then, agricultural extension is working under the provincial government as it did before devolution, except at the subdivisional level. Now, field assistants are posted at *Tappa* level, agriculture officers at union council level, assistant director at *Taluka* level, deputy directors at district level, directors of agricultural extension at divisional level and Director General, Agricultural Extension Sindh at provincial level.

The agricultural extension wing of the Sindh Department of Agriculture, Supply and Prices is responsible for advising and educating farmers in modern crop production practices and technologies; advising farmers on proper seed requirements, timely sowing, balanced and efficient use of fertilisers, and efficient/judicious use of irrigation water and pesticides; and educating farmers in effective crop management, harvesting, storage and marketing, etc.

4.2.3 Overall approach to extension services in Pakistan

The current extension approach in Pakistan (the agricultural hub program) is a modified version of the previous 'Travel & Visit' (T&V) approach that was adopted in the 1950s. Its methodology is to select a progressive and

socially accepted farmer (termed the hub farmer) as the model farmer whose farm serves as a demonstration centre for other farmers. Extension staff visit the hub farmer at least once a week and arrange farmer meetings to introduce and disseminate approved agricultural technologies. Other farmers are invited to the centre for learning.

Reviews by the Food and Agriculture Organization of the United Nations (FAO 2015, 2012) and IFPRI (2012) reported that extension services across Pakistan's provinces did not meet the needs of small farmers and women farmers. Reasons for this include lack of adequate funding, lack of training and career prospects of extension workers, lack of coordination among government departments, and the dominance of large farmers in Pakistan's agriculture.

Pakistan's funding of public R&D in agriculture relative to agricultural GDP, known as the R&D 'intensity ratio of agriculture', is the lowest in the South Asia region. Within this region, India has the highest ratio at 0.4, followed by Sri Lanka and Bangladesh each with 0.34, Nepal 0.27 and Pakistan 0.25 (Shahbaz and Ata 2014). Although Pakistan enjoyed high agricultural yields during the Green Revolution, agricultural yields in Pakistan have been stagnant for many years and overall agricultural growth has slowed down during the last decade.

A direct result of underfunding of extension services is that each extension agent in Pakistan is expected to serve around 6,880 farmers (IFPRI 2012), whereas the corresponding figure in India is 1,360 (B.S. Chandel pers. comm. 2017). In a background paper specially prepared for project ADP/2010/091, Shahbaz and Ata (2014) conclude that Pakistan's agricultural extension services remain focused primarily on major crops (wheat, maize, sugar cane and cotton) and on large farmers who dominate agricultural investment in Punjab and Sindh. As a result, small farmers and women farmers are generally ignored.

Major reasons for the exclusion of women farmers from extension services are that, due to cultural norms, male extension workers cannot interact with rural women, and there is a severe shortage of female extension workers in Pakistan (FAO 2015). Thus, small farmers (men and women) in Pakistan desperately need support from public extension services.

4.2.4 Decentralisation and coordination

Pakistan's experiment with district-based devolution of extension services between 2001 and 2011 failed to deliver the benefits of decentralisation, which include empowering local farmers and communities in an inclusive manner. Lack of coordination between various deliverers of extension services ultimately resulted in information overload due to duplication, or conflicting advice being provided to farmers. The lack of coordination was not limited to district administrations. According to Burton et al. (2012), agricultural universities in Pakistan also operate in relative isolation from other agricultural research and extension institutions. As a result, extension services in Pakistan never worked like a well-oiled machine in which different parts support the entire system to function smoothly. Rather, extension services remained inefficient, top-down, autocratic, large-landholder-oriented and ignoring the need for gender equality (Abbas et al. 2009).

Devolution was followed by a reduction in funding by 25–30%, and decentralisation has also weakened the morale and motivation of extension agents. Shahbaz and Ata (2014) reported that the majority of farmers did not perceive any change in the overall performance of the agriculture extension after devolution.

4.2.5 Extension services by non-government providers

The involvement of the private sector in agricultural development is relatively recent in Pakistan. This was instigated by a recommendation of the National Commission on Agriculture in 1988, encouraging the

participation of the corporate sector to facilitate transition of Pakistan's subsistence agriculture to commercial agriculture (Government of Pakistan 1988). Agricultural input suppliers—predominantly international pesticide and fertiliser enterprises—began to take part in agricultural extension services. Now, almost all the major private national and multinational companies engaged with agriculture and livestock are also providing advisory services to their clients, as these services also provide a valid channel for advertising and promoting their products.

Some studies have reported that pesticide and fertiliser dealers are highly influential in the farmers' choices regarding the use of specific pesticides, fertilisers, seeds and other related inputs, but their advice was often limited to the sale of their own products (Mirani 2007). On the other hand, other studies have reported that farmers do not have a favourable opinion of the extension staff of private companies, who are perceived as either incompetent or biased. Smallholders are reported to be either unable to afford private sector extension services or consider the quality of these services not worth paying for (Qamar 2005).

Several NGOs and farmers' organisations are also providing extension services, such as WWF-Pakistan, the Aga Khan Rural Support Program (AKRSP), the Sungi Development Foundation, the Lok-Sanjh Foundation, the NGO World, and the Sustainable Development Policy Institute (SDPI). The community participation model of AKRSP was adopted at the national level through nationwide rural support programs.

4.3 Global experience in improving extension services

4.3.1 China

The national government of China is heavily involved in the country's agricultural extension services system, which has five distinctive features. First, the training of extension staff is specialised to provide extension services for crops, livestock, fisheries, agricultural management, or farm mechanisation. Second, the public extension services aim for inclusiveness of all farmers (men and women). Third, a systematic approach is taken for identifying farmers' needs for extension services. Fourth, all extension agents are accountable to the farmers. Finally, extension agents are given incentives to improve their performance.

From a budgetary perspective, China's public sector funded extension workers fall into three categories: fully funded agents (who are on government payroll), partially funded agents (government pays part of base salary) and self-funded agents (whose base salary comes from commercial activities and grants). The county governments have flexibility in implementing these categories. In most cases, crop extension workers are categorised as fully funded agents, while livestock and aquaculture extension staff are often partially funded agents. Extension workers dealing with inputs such as seeds, fertilisers and pesticides are usually self-funded agents.

Around the turn of the century, China had more than one million trained extension staff, of which about 370,000 were trained in crops, 375,000 in livestock, 40,000 in fisheries, 175,000 in agricultural (economic) management, and about 180,000 in farm mechanisation. An additional one million farmer technicians work part-time at the village level providing advisory services to other farmers and can also earn commissions from selling fertiliser, pesticides and seeds to farmers (Huang 2001).

4.3.2 Chile

After a series of reforms in the 1980s, Chile's extension services have also become more demand driven than before. Now, farmer organisations seek extension advice for implementing specific projects for commercialisation and modernisation of small-farm agriculture. The government does not provide all extension services through the public sector, but also contracts private

extension service providers for specific services. The contracted private extension services have yielded positive results for small farmers, and there appears to be no support for returning to a public extension system. Chile's contract extension system is now characterised by the following key features:

- Demand-driven extension services are designed for different categories of farmers.
- Program design of extension services is decentralised at regional and local levels.
- Each program includes extension advice on market orientation and marketing services.
- Extension agents are provided technical support services and training.
- There are national monitoring and evaluation systems for extension services.

4.3.3 India

Extension services in India have evolved over time. Instead of being focused on the supply of improved seed varieties and fertilisers, as was the case during the Green Revolution period, extension services are now focused on providing information, knowledge, technologies and technical support for enabling farmers to participate in modern supply chains for high-value products.

Extension staff are also trained to guide farmers by 'holding their hands' through the transition from subsistence farming to commercial farming, in which much higher standards of product safety and timely delivery are required.

All three levels of government in India play a role in agricultural extension services. The central government established the Agricultural Technology Management Agency (ATMA) in 1998 as a pilot, and then mainstreamed it nationwide in 2007. Within the broad parameters of this national framework, each state is free to develop its own model of extension services, with or without private sector/NGO partnerships.

The key features of the ATMA model are basic district-level interactive administration, coordination and management of programs and projects at the state level, functional decentralisation, financial autonomy, widespread coverage of extension activities and the farming community, enhanced research–extension–farmer (R-E-F) linkages, bringing private agencies into the extension network and regular training of extension workers (for details see Chandel 2015). It is widely acknowledged that the ATMA model of extension services has been able to combine the benefits of decentralisation with a national policy of providing inclusive, demand-based and pluralistic extension services to farmers, including small and marginal farmers.

The ATMA model has contributed significantly to improving rural livelihoods in most project districts, directly or indirectly affecting about 6.7 million rural households in the 28 National Agricultural Technology Project (NATP) districts, plus an additional 8.3 million households under the Diversified Agriculture Support Project in Uttar Pradesh. According to Swanson and Rajalathi (2010), the positive impacts of ATMA include the following:

- Farmer empowerment: over 10,000 farmer groups were organised, with one-third being composed of women farmers and landless rural women. Farmer leadership and organisational skills emerged at village, block and district levels, directly influencing extension programs and priorities.
- Agricultural diversification: substantial increases in the production of high-value crops/products; for example, between 1999 and 2003 the area allocated to horticultural crops, oil seeds, herbs and medicinal crops, sericulture (silk), livestock and fisheries has increased substantially.
- Higher farm incomes: average farm income increased 24% in 28 project districts, compared with only a marginal increase in nearby, non-project districts.

4.3.4 Africa: Kenya, Rwanda, Burundi and Zambia

In Kenya, the One Acre Fund started in 2006 with 125 farmers, and has been growing at the rate of 30% each year since. It is now serving more than 135,000 small farm and landless households across Kenya, Rwanda and Burundi. The One Acre Fund provides a complete bundle of extension services to include high-quality seeds, fertilisers, credit, weekly farm education, and postharvest and market support. The approach of bundling services together provides farmers a complete value chain and adds value to the communities. Farmers are provided these services on credit, and flexible payments are agreed throughout the season. Field expenses not covered though loan repayments are covered by a broad pool of donor funding (www.OneAcreFund.org).

The Zambian Ministry of Agricultural and Cooperative Development, in cooperation with the Swedish International Development Agency, introduced a participatory extension strategy involving 44,000 rural households to increase farmers' incomes. Community groups were organised and potential economic opportunities for the farmer households were identified for each target area. After identifying opportunities for these households, training was provided to allow them to exploit the opportunities. Within five years, the participating households increased their farm income by 35% more than the non-participating households. Households with female heads increased their average income by 78% in comparison with a 31% increase among male-headed households. More than 60% of the participating households also achieved food security by producing more maize than they consumed (Swanson and Rajalathi 2010).

Given the substantial role of rural support programs in Pakistan, this model of extension services may be usefully incorporated into the work of the RSPs.

4.4 Summary

The foregoing discussion leads to the conclusion that extension services in Punjab and Sindh have attracted well-deserved criticism from domestic and overseas researchers. The extension system was largely supply driven, and focused on crops, elite farmers and male farmers, with the result that small farmers and women farmers were not well served. The extension system was also under-funded, with the result that each extension agent had to serve a huge number of farmers, so those farmers with little influence (in other words small farmers and women) were left out. The extension agents were also not well trained to enable small farmers to engage with modern food supply chains. In the dairy industry, extension agents were veterinarians who were largely focused on treating sick animals, rather than preventing animal disease.

In the past 2–3 years, new initiatives have been implemented in both provinces to modernise extension services for both agriculture, and livestock and dairy. Lack of adequate funding of extension services remains an issue, and we have made recommendations about that. Improvement of technical quality of the extension agents and improving their career paths and motivation also need to be addressed. The international experiences discussed above also point to some useful directions that are highly relevant for Pakistan. Some of these are summarised below, before putting out specific recommendations.

4.4.1 The mission of extension services needs to become broader

Instead of simply transferring technology (e.g. high-yielding seeds) and subsequently visiting the farmers, objectives of modern extension services include building trust, behavioural change, reduction of risk, and successfully connecting farmers with value chains. Thus, activities of extension services should broadly include: (a) to facilitate access of farmers to information, knowledge and technologies; (b)

to facilitate their interaction with partners in research, education, agribusiness, and other relevant institutions; and (c) to assist them to develop their own technical, organisational and management skills and practices.

4.4.2 Extension services must become more demand driven

The worldwide trend towards demand-driven extension services is the result of two fundamental insights: (a) that the needs of all farmers for extension services are not identical; and (b) that smallholders cannot afford to engage gainfully with modern supply chains without the support of extension services. Thus, extension agents must enable smallholders to become self-teaching experimenters and effective trainers of other farmers (Anderson 2007). Several countries in Asia, Africa, and Latin America have made their extension services more demand driven.

4.4.3 Extension systems must become pluralistic

Extension systems around the globe are provided not only by the public sector, but also by the private sector and civil society providers. As the coverage of extension services provided by non-government sector organisations expands, the role of the public sector is progressively becoming more regulatory and supportive, by coordinating the service providers and utilising IT-based applications.

4.4.4 In many countries, several levels of government are involved in extension services

In several countries, extension services are not provided by just one level of government; rather central, provincial and local governments are all involved in different aspects. This allows national campaigns to be launched for introducing a systemic shift in the roles of extension services, leaving room at provincial or local levels for variations to accommodate local circumstances. The involvement of national government also means that extension services can be adequately resourced.

4.5 Recommendations

RECOMMENDATION 4.1

The mission of extension services in Pakistan should be redefined more broadly to 'enable all farmers, including smallholders and women, to gainfully engage with modern food supply chains by adopting modern methods of production to increase their productivity and to diversify their livelihood sources'.

Motivation

The motivation for this recommendation is to: (a) put specific focus on smallholders and women farmers being the legitimate clients of the extension staff; (b) make extension services more demand driven than they are at present; and (c) make extension services a driver of diversification of the rural economy.

RECOMMENDATION 4.2

All policy initiatives for modernisation of extension services should be given prominence in support of the key objectives of the Pakistan Vision 2025 and the 12th Five Year Plan of the Planning Commission (2018–23) (e.g. increasing productivity, promoting rural transformation and achieving inclusive development). Federal and provincial governments should increase budgetary support for upgrading capabilities of extension personnel through in-service training in promoting rural diversification and small farmers' organisations, and recruiting more women extension agents.

Motivation

The motivation is to inject some national support and financial commitment to compensate provincial governments for national benefits from modernised extension services. While primary responsibility for extension services will remain with provincial governments, the effect of this recommendation would be to attract federal financial support for bringing about a broad-based transformation of extension services and equipping extension service personnel with technical training required for their broader responsibilities in respect of rural transformation and small farmers' organisations.

It is worth noting in this context that in India, where agriculture and extension services are also state subjects under the constitution, the central government share of actual expenditure of ATMA in 2014–15 was 84% of total public expenditure, while the states funded the remaining 16%. The central government provides its share in annual instalments. Before releasing the second instalment to the states, the Centre ensures that: (1) audited utilisation certificates and audited statements of expenditure for the previous year are available; (2) monthly and annual progress reports for the previous month and year, respectively, have been submitted; and (3) the concerned state has released the corresponding share against the funds provided by the central government up to the previous year.

RECOMMENDATION 4.3

To promote greater diversification of the rural economy, extension personnel should be trained to enable smallholders and women farmers to supplement their farm incomes with additional earnings from non-farm activities such as small businesses or off-farm employment.

Motivation

Public extension personnel need to be equipped to help small farmers increase their resilience by diversifying their income sources. Strengthening links of smallholder agriculture with the non-farm rural economy (small business opportunities) will go a long way in raising labour productivity in agriculture and increasing household incomes of smallholders at the same time.

RECOMMENDATION 4.4

The current deficit of women extension staff must be rectified as a priority by increased funding for training female extension staff.

Motivation

While women undertake heavy workloads in rearing livestock and caring for fruit trees in Pakistan, the number of female extension staff is currently extremely low. Due to cultural inhibitions and social expectations, women farmers do not like to interact with male extension staff. This recommendation aims to plug a major hole in the current system of extension services in Pakistan. Because of the shortage of women extension staff, women farmers are not able to get the required help, guidance and training.

RECOMMENDATION 4.5

Extension services should train small farmers for Global GAP certifications so that they can gain sanitary and phytosanitary (SPS) compliance and meet the strict SPS requirements of modern food supply chains for exporting Pakistan's dairy products and citrus and mangoes.

Motivation

This recommendation addresses a major challenge in Pakistan's preparation for increasing exports of food products to high-quality markets. Meeting this challenge requires a major initiative to first train the extension personnel and then the small farmers to enable them to sell their produce in high-quality markets.

RECOMMENDATION 4.6

Urgent measures should be taken to improve coordination between all agencies and government departments that are involved in providing extension services and in training extension personnel.

Motivation

There is a clear need to improve the efficiency and effectiveness of Pakistan's agricultural extension services system by streamlining coordination within, and across, relevant government agencies, research institutes and agricultural universities.

RECOMMENDATION 4.7

To make extension services more demand driven, non-negotiable extension vouchers should be issued for smallholders and women farmers to purchase extension services from private sector providers. Initially, vouchers should be issued on a trial basis as pilot projects in selected districts, and subsequently mainstreamed after appropriate modifications in light of the experience gained from the pilot trials.

Motivation

The motivation behind this recommendation is: (a) to provide choice to farmers in selecting extension service providers who best meet their needs; and (b) to help make the entire extension service system more demand driven.

RECOMMENDATION 4.8

Extension service personnel should encourage small farmers to form associations, networks or cooperatives, or producer companies to enhance their bargaining power and tap into the benefits of social capital.

Motivation

The motivation here is to involve extension service personnel in the promotion of small farmer self-help networks, possibly based on the rural support programs already operating in Pakistan.

RECOMMENDATION 4.9

An effective GIS-based monitoring and evaluation system should be introduced together with regular publication of reliable and timely statistics about the progress being made.

Motivation

The motivation here is to use information technologies in innovative ways to extend the outreach of extension services, and to strengthen monitoring and evaluation frameworks that are based on reliable and timely statistics.

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5 Smallholder access to markets in Pakistan

5.1 Introduction

The agricultural marketing system plays a key role in the transfer of products from farmers to final consumers. Numerous intermediaries, a prominent feature of Pakistan's agricultural markets, provide services such as harvesting, postharvest handling, packaging, transport and storage, price determination, ownership transfer, and so on.

Governments play an important role in the success of markets in terms of the legal, physical and regulatory environment in which the markets operate. In addition, governments provide essential infrastructure (for example roads), which affect smallholders' ability to participate in markets. By influencing whether smallholders can access markets, and the conditions under which participants operate within a market, governments also affect the livelihoods of smallholder farmers and other market participants.

In Pakistan, smallholders are mostly isolated from markets and are dependent upon local contractors and middlemen to sell their produce. Smallholders are often severely cash constrained and sell rights to their crop well before harvesting, at low prices. In these circumstances, smallholders are easily exploited. This market isolation also reduces the flow of market information to smallholders and thus their ability to adjust to changes in market conditions.

The future growth of Pakistan's agricultural sector relies heavily on the development of an efficient marketing system providing useful and cost-effective services to all participants. Pakistan's agricultural marketing often does not meet these requirements. Inadequate market infrastructure, poor road access, poor harvesting and poor postharvest treatments severely restrict outcomes, leading to low prices for farmers and high levels of wastage, for example. In addition, the poorly functioning

marketing system is slow to adjust to changes occurring in the modern market environment, further compounding the situation.

A recent report by the Food and Agriculture Organization of the UN (FAO) stresses the importance of stronger linkages between cities/towns and their adjacent rural areas for developing efficient agricultural marketing systems and nearby urban food markets. FAO argues that by supplying appropriate infrastructure (roads, cold storage, etc.), and by providing enabling conditions for development of enhanced linkages between town/city food requirements and nearby farmers, governments can leverage agroindustry developments to improve livelihoods. Much of this is currently lacking in Pakistan. The report states:

> *Fostering rural–urban linkages through appropriate territorial strategies can create both favourable business environment for farmers—small and large—and the non-farm income opportunities vital for building prosperous and sustainable rural economies. (FAO 2017, p. xvii)*

The report also argues that urban food demand is not sufficient on its own to improve smallholder livelihoods. Urban demand needs to be supported by public policies and public investment in agricultural marketing and this is the key to improving livelihoods (FAO 2017, p. vi).

5.2 Access to markets in Pakistan

Pakistan agricultural marketing has a complex set of intermediaries between farmer and retailers. Markets are often dominated by intermediaries with little active participation of farmers or retailers. Such markets increase the risks and cost for participants, and often operate with an unequal power balance between buyers and sellers.

5.2.1 Dairy markets

Milk marketing is done by village collectors who collect milk from small farms and sell to other wholesalers or use it within their own shops. Due to the lack of cold storage in the countryside, milk collectors often add ice to milk, thus increasing the quantity of milk but reducing its quality. As consumers are price conscious, demand for low-priced raw milk is high compared to processed milk. Hence, over 90% of the marketed milk is collected and marketed unprocessed through informal channels by a multi-tiered layer of intermediaries.

Smallholder dairy farmers face various other challenges in this regard. A fragmented farm base coupled with low productivity makes these collection practices inefficient. Access to proper infrastructure such as cold chains and adequate roads is limited and leads to significant postharvest losses in some areas. Farmers follow old and traditional dairy farming practices and the milk marketing chain from farm to consumer is both inefficient and costly for smallholders (PDDC 2006).

Price controls by capping the milk price also severely disadvantage smallholders, isolating them from market forces and forcing milk sales at below the cost of production. This isolation is also a strong disincentive to further increase production, even though domestic supply of milk is insufficient to meet domestic demand. Annual imports of milk, particularly powdered milk, have increased in recent years, rising to more than US$200 million worth in 2016.

Householder survey—dairy respondents

Our survey of smallholder farmers confirmed that most of the survey respondents sold milk to Gowalas (Punjab 70%, Sindh 54%), directly to the consumers, or informally in the local village. Only 2% of the respondents' milk was sold directly to a local collection centre or to a milk processing plant. Interestingly, nearly all respondents did not expect these arrangements to change in the future. Thus, the smallholders appeared to be locked

into the current unsatisfactory marketing arrangements. Survey respondents also believed that increased sales of milk and livestock are their best options for increasing incomes in the future.

5.2.2 Mango markets

The mango marketing chain is fragmented, as it involves a large number of participants. Contractors are often involved in the preharvest stage and purchase rights to the fruit at flowering. They are financed by commission agents who control the flow of fruit from the farm to the wholesale market. The commission agents facilitate the sale to wholesalers, normally at auction, who in turn on-sell to retailers.

The whole system of production, harvest, postharvest treatment and handling is poorly developed, cumbersome, involves many transactions and favours the middlemen. Modern infrastructure like cold storage, grading, postharvest treatment, packaging and transport is lacking. Therefore, fruit quality is poor and there is much wastage with little to no further processing into other higher value products. As a seasonal crop, smallholders sell when supply is abundant and prices are low.

In export markets, Pakistan has a reputation for low-price, low-quality fruit and exports are often sold into low SPS requirement markets in the Middle East.

Improving the marketing chain efficiency and transparency, and reducing the number of steps in the chain, will reduce both risk and costs. Many smallholder farmers are in areas with poor infrastructure and are dependent on contractors to supply marketing chain functions; and they are the most disadvantaged participants.

Householder survey—mango respondents

Less than 1% of respondents sold their fruit directly into wholesale markets. However, Punjab smallholders are more likely to sell later in the production cycle—either at fruiting (39% of respondents) or directly in local markets (35% of respondents). Sindh smallholders are more likely to sell earlier in the production cycle with half of the Sindh respondents selling at flowering, before harvest. Few respondents expect changes in future selling arrangements, and of those that did, most of them expect to participate in export.

5.2.3 Citrus markets

Similar issues apply for the citrus marketing chain. In both cases (mango and citrus), fruit is perishable and seasonal, and farmers are selling when supply is abundant, that is, they are selling into a buyers' market. Most citrus producers also sell the harvesting rights to their orchard at flowering to contractors.

Householder survey—citrus respondents

The survey results also confirmed much of our understanding of marketing for smallholder citrus farmers. These farmers are not directly connected to markets and sell their fruit to intermediaries. These intermediaries are contractors who purchase the fruit before the fruit is harvested, with 67% of respondents selling their fruit in this manner. Only 7% of respondents sell directly in local markets and only 2% sell directly into major wholesale markets. No respondents reported being directly involved in export markets. Only 12% of respondents expect future selling arrangements to change; thus 88% of respondents see themselves locked into their current selling arrangements.

5.2.4 Commission agents

Commission agents are important participants in agricultural markets in Pakistan. They extend short-term loans to contractors who harvest the fruit and bring the produce to the commission agents for sale. The wholesaler usually purchases fruit from commission agents and after purchase they clean, grade and standardise the fruit prior to sale to the retailer or exporter.

5.3 Key elements for improving smallholder access to market

5.3.1 Wholesale markets

Wholesale markets play a central role in the movement of agricultural product from farm to consumer. In Pakistan, commission agents dominate wholesale markets with little involvement of either consumers or producers. The performance of many wholesale markets is poor. Physical infrastructure is often in poor condition. Facilities for transport and cold storage are often non-existent, unhygienic or in poor repair. Market information is also restricted and not available to all participants. The markets are managed by market committees whose members are political appointments. Governance structures are poor and account for much of the poor state of existing markets.

Efficient access to markets plays a key role in ensuring farmers receive a fair price for produce. Many wholesale markets are regulated regional monopolies that do not operate in the interests of smallholders. Smallholder farmers in Pakistan are mostly isolated from markets and are often exploited.

Poor market access and performance is at a time when the importance of wholesale markets in fostering linkages between towns/cities and rural producers is recognised as a central component for agricultural industrial rural development (FAO 2017). In the towns/cities, urban consumers, supermarkets and export markets all require produce that is traceable, has extended shelf life, is hygienic, and has consistent quality and grading. Higher prices are available for such product attributes. Existing wholesale markets in Pakistan are a major restriction in enabling supply of such products.

The Punjab provincial government has recognised the importance of efficient agricultural marketing, and in early 2018 it established the Punjab Agricultural Marketing Regulatory Authority whose remit is to modernise agricultural marketing, including virtual markets, encouraging new private sector investment, modernising product grading standards and enabling a fairer auctioning system. Growers or their organisations will be able to establish their own markets. All new markets will need to be registered with the authority and existing markets will need to be registered, and work within the authority guidelines, after two years. This development has the potential to introduce much new investment, competition and flexibility into agricultural marketing in Punjab and is a substantial change from past practices.

RECOMMENDATION 5.1

Develop policies for market deregulation to eliminate regional market monopolies and to encourage private sector investment and competition. New investment is also required to improve physical infrastructure, efficiency and transparency, to reduce wastage, and to increase access for smallholder farmers.

5.3.2 Price controls

Price capping has the effect of distorting market outcomes; a good example of this is the current supply and demand mismatch of fresh milk in Pakistan.

Under the *Price Control and Prevention of Profiteering and Hoarding Act, 1977* (PCPPHA), the federal government has authority to control prices of essential commodities, including fresh milk, meat, fruits and vegetables, through the National Price Control Committees for the welfare of the public. The problem is that the benefits of price regulation go to the consumers, while producers bear the cost. The intention behind dairy price fixing is to have affordable milk and dairy products for domestic consumers. However, the price capping is unsustainable because it occurs at the cost of dairy farmers. The price is capped

at the retail level. Well over 90% of milk is sold in this manner through informal channels. The formal corporate dairy sector has the remaining (small) share of the market and is exempted from price capping.

According to the Punjab Livestock and Dairy Development Department (2018), the capped milk price does not cover the farmers' cost of production, and farmers have responded by reducing production. Small and subsistence farmers barely survive and do so with the use of family labour and access to free grazing, both of which help in reducing costs. Large dairy farmers have also been withdrawing from the industry due to low profitability.

Consequently, milk production is less than demand and increasing imports are required using scarce foreign reserves. In addition, retail milk collectors and others in the supply chain regularly add other elements to 'stretch' the supply. Corporate milk processors have also been heavily supplementing the supply of locally produced milk with 'manufactured milk' made from imported milk or whey powder. It is alleged that 'manufactured milk' is also sometimes prepared from additives that are harmful for human health. It is estimated that by 2020, the gap between demand and supply of milk will increase to 55 million tonnes due to price capping and discouraged investment (TRTA 2013; Chaudhry and Miranda 2015).

The removal of price controls will increase returns to smallholders in the short term and act as an incentive to increase investment and production. In the longer term, Pakistan should be looking to replace imports and develop its dairy export potential. Thus, Punjab Livestock and Dairy Development Department (PLDDD) has recommended immediate removal of price capping of milk in the interest of rejuvenating the domestic dairy industry.

RECOMMENDATION 5.2

Remove price capping of milk and milk products to enable the dairy market to function more responsively to smallholder farmers.

5.3.3 Cold storage and related logistics facilities

An efficient and cost-effective cold storage and logistics infrastructure are prerequisite conditions for an efficient agricultural marketing system. The state of Pakistan's transport, storage and related logistics infrastructure is a major constraint to the development of efficient agricultural marketing chains.

The poor state of the road network combined with limited cold storage facilities leads to damage and loss of fruits, vegetables, meat and milk, which particularly disadvantages smallholders. The poor state of many roads requires that produce must be carried in small all-purpose, rather than larger refrigerated or special purpose vehicles, thus increasing costs and wastage. Poor postharvest handling further compounds the level of waste. The Planning Commission's Final Report of the Advisory Panel of Economists (2010) estimates the wastage of total fruit and vegetable at between 35% and 40% of production.

Clearly public and private sector investment in roads, electricity supply, cold storage, refrigerated transport, packaging and logistics is needed, and policies need to incentivise these investments.

Smallholder farmers are often located furthest away from main roads in more remote areas, and the extra cost they must bear to bring their product to market precludes them from participating in anything but local markets.

Another area where investment is required is product processing. There is little fruit processing in Pakistan; the sale of fruits is as fresh produce and not processed. The processing of agricultural products is an important agroindustrial development in rural areas, generating employment and income, and linking rural areas to increasing demand from urban markets.

RECOMMENDATION 5.3

Improve roads and other essential infrastructure for better linkages between villages and agricultural markets, and introduce policies to encourage private sector investment in an expanded network of cold storage facilities.

5.3.4 Market opportunities

The changing nature of urban diets towards increasing levels of animal proteins, fruits and vegetables and processed foods has been noted. This is a global phenomenon and much of the expected growth is located near Pakistan in North, Central and South Asia, the Middle East and in South-East Asia. These developments provide opportunities for Pakistan to leverage this for farmers, agri-businesses, input suppliers, and non-farm service suppliers. The key is to further develop efficient linkages between the rural areas and food service businesses in towns/cities, and ultimately to domestic and export markets. To take advantage of these opportunities, it is necessary to develop further, and strengthen the efficiency of, the agricultural and food service marketing chains.

Chapter 2 presents a detailed international trade analysis for mangoes and mandarins. In summary, world markets for these fruits are expanding, but Pakistan has a low market share, and exports small volumes to a wide range of countries—possibly to expatriates. The remainder of exports are highly concentrated in only a small number of countries. Pakistan exports significant volumes to only a small number of countries and tiny volumes to a large number. There are many potential opportunities to expand exports and some of these are identified in Chapter 2.

Product processing is another major potential export opportunity not grasped by Pakistan. Chapter 2 demonstrates the importance of processed product for export. For example, a significant proportion of Indian exports of mangoes are processed product. In the large USA import market, around 40% of Indian exports of mangoes to the USA are dried mangoes, whereas there are little to no dried mango exports from Pakistan to the USA. Processing also allows for ongoing storage and for export supply continuously throughout the year, and not just when fresh in season, as is currently the case for Pakistan. Chapter 2 recommends policies be introduced to promote food-processing facilities in Pakistan to supply both the domestic and export markets.

5.3.5 Communication and market information

The survey of smallholders undertaken by ACIAR project ADP/2010/091 confirms there are two principal methods by which smallholders gain market and other information: by mobile phone or from other farmers. Other sources of information such as TV, radio and internet were not used by many smallholder respondents. The key implication is that the mobile phone network can be used as a major conduit to supply information to farmers, and as a method for smallholders to seek information from government agencies. Indeed, the PLDDD in its policy papers (2015) explicitly recognises the importance of the mobile phone network, and offers market and other information services via the phone network.

The survey results also confirm that smallholders do not currently receive any information from government. Over 90% of survey respondents stated this. The remaining farmers who did access government information are more likely to have higher levels of education, more land and higher gross revenues. They also tended to be citrus or mango growers and over 40 years of age.

However, the startling statistic is that information on existing government programs by and large has not been successfully delivered to smallholder farmers.

RECOMMENDATION 5.4

Build on the existing work to extend the supply of market information services via the mobile phone network in combination with the supply of extension services to smallholders and possible formation of collective arrangements.

5.3.6 Concept of farmers' markets

Farmers' markets have become popular in many countries and are essentially markets for fresh produce where farmers sell directly to consumers. They are usually held in public places and at regular times each month. In these markets, sale of produce is usually restricted to local farmers and middlemen are mostly bypassed. Farmers' markets are different from public wholesale markets, which are generally located in permanent spaces and held on a more regular basis with central participation of wholesalers and other intermediaries.

In many instances, the farmers' market and the farmers selling within the market are accredited to provide consumers confidence they are dealing with actual growers. In addition, consumers benefit from slightly lower prices, fresher food which has not travelled long distances, and the opportunity to deal directly with the farmer. Farmers have the benefit of retaining some of the profit margin usually given to the middlemen. In addition, both parties gain from the more social nature of the relationship than in traditional markets.

Within a region, the establishment of a system of farmers' markets will often require the development of accreditation, branding, communication and other marketing/promotional activities. This will usually require the forming of some type of collective organisation, and this organisation may require start-up working capital until the organisation has sufficient scale to operate on its own. Government may be required to assist here.

RECOMMENDATION 5.5

Provincial governments should evaluate the benefits of farmers' markets, and provide some seed funding until sufficient scale has been achieved for self-sustained farmers' markets.

5.4 Some existing initiatives

The Government of Punjab has recognised the needed for substantial reform of agricultural marketing in Punjab. Below are some recent initiatives undertaken to start to address many of the issues discussed in this monograph.

- Model Farms and Improved Supply Chain—a four-year demonstration project starting in 2017–18 tackling many of the supply chain constraints outlined in this chapter.
- Agricultural Marketing Information Service—a daily market information service providing timely, reliable and useable market information to growers and stakeholders. The Department of Livestock has already established a very successful service based on the mobile phone network.
- Punjab Agricultural Marketing Regulatory Authority—the modernisation of wholesale, discussed under Section 5.3.1.
- Strengthening Markets for Agriculture and Rural Transformation in Punjab—with funding from the World Bank, the Government of Pakistan will promote investment and innovation in agribusinesses through matching grants as well as capacity building.

5.5 Summary and conclusions

The specific aim of ACIAR project ADP/2010/091 was to develop policy options for addressing policy-related constraints faced by smallholders in the dairy, mango and citrus sectors of Punjab and Sindh. The aim of the project was to improve livelihoods of smallholders by connecting them with markets and modern supply chains on improved financial terms. An efficient agricultural marketing system in Pakistan is a prerequisite for this, yet the project's own survey of smallholders revealed that smallholders are mostly isolated from markets. Smallholders are dependent on local contractors and middlemen to sell their produce and are often exploited. This isolation reduces their returns and the flow of market signals to smallholders and thus their ability to adjust to these signals. It is necessary to develop a range of initiatives to link smallholders to markets and allow smallholders to participate in modern supply chains supporting domestic and export markets under fair financial terms.

Various constraints limiting market access are identified in this chapter and a range of policies recommended. Indeed, in recent times some of these initiatives have already begun to be explored, yet much more needs to be done.

A major strategic objective for the Pakistan agricultural sector should be to become a significant global supplier of key agricultural products into neighbouring countries in the coming years. Enabling smallholders to connect and interact with wider domestic and export markets is crucial for improving livelihoods.

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6 Smallholder producer organisations

6.1 Introduction

The primary focus of ACIAR project ADP/2010/091 was on developing policy options for improving the livelihoods of smallholders in the dairy, citrus and mango sectors in Punjab and Sindh. This chapter considers how small farmer organisations can help to improve their livelihoods; how other developing countries have helped the growth and development of such organisations; and how governments in Pakistan can do the same to improve smallholders' livelihoods. Following the introductory remarks in this section, key challenges faced by smallholder agriculture operating in modern supply chains are discussed in Section 6.2. Section 6.3 provides a background to the current situation of smallholders in Pakistan's dairy, citrus and mango subsectors, and the role of farmer cooperatives. How farmer organisations have performed in several developed and developing countries is discussed Section 6.4. Section 6.5 provides a summary of key points emerging from the discussion, before recommendations are made in Section 6.6 on how federal and provincial governments should support the development of smallholder cooperatives/producer organisations in Pakistan.

Smallholders in Pakistan account for 90% of citrus cultivators, more than 66% of mango growers and more than 84% of dairy farmers. The yields of small farmers in all three sectors are low, and real incomes for most of them have increased only marginally in Punjab, and have fallen in Sindh in the past 15 years. Major challenges facing these farmers are the lack of access to markets, extension services, affordable credit and insurance, and organisations for helping them to integrate with modern supply chains on favourable terms. The Working Group on Agriculture and Food Security noted in its report to the Planning Commission that Pakistan's agriculture sector had developed a dualistic structure, in which 86% of farm households

own less than 50% of farmland, and that the need to improve the viability of smallholders was urgent: 'Agricultural growth in Pakistan has not benefited the rural poor to the extent it was expected' (WGAFS 2010). Given this background, the policy challenge is to revitalise smallholder agriculture by channelling resources and supporting small farmers who have little effective voice in policymaking and implementation. For this to happen, special institutions including small farmer organisations need to be promoted.

By smallholder organisations, we mean a variety of organisations (cooperatives, producer companies, self-help groups, rural support programs, and even contract farming—if it is open to small farmers) that are able to combine the interests and efforts of smallholders into one voice, and by doing so increase their bargaining power in the markets, their access to formal credit and insurance, and their access to agricultural inputs, including extension services.

Because small farmers individually cannot engage with modern agricultural supply chains, they need the support of organisations. The structure and operation of agricultural supply chains have been evolving during the past three decades under the influence of globalisation of production and trade, liberalisation of markets, and vertical integration of supply chains. The buyers in modern markets prefer to purchase in bulk from larger producers, who are able to sell in large volumes and meet strict requirements of quality and timeliness. Engagement with large numbers of small farmers who are typically dispersed across large areas, often with rudimentary transport links to towns and cities, increases transaction costs for the buyers. Unable to connect with these markets on their own, most small farmers continue to depend on, and be exploited by, the traditional middlemen—contractors, commission agents and money lenders. Over time, small farmers have become pessimistic about their future and are risk averse in their choices, with the result that small farmers have developed a strong reluctance to adopt new technologies and farm practices. They are trapped in this vicious cycle of low productivity, static incomes and exploitative markets.

Smallholder cooperatives can enhance their members' competitiveness by: (a) adding to their bargaining power; (b) facilitating access to higher quality and more reliable inputs and services; and (c) creating new opportunities for improving their management skills. There are many examples in Asian countries, including China, India and Vietnam, where smallholder cooperatives have improved the livelihoods of their members.

The potential benefits of small farmer organisation have been recognised in Pakistan for a long time. For example, the Pakistan Planning Commission's Working Group on Agricultural Marketing Infrastructure and Post-Harvest Management (2009) recommended that: 'despite the unfavourable experience with farmer cooperatives in Pakistan in the past, the idea of producer organizations still holds its validity in many countries having almost similar socio-economic and cultural traits as of Pakistan, and that farmers' cooperatives should be reorganized/established in Pakistan avoiding past mistakes'. Similarly, the Food and Agriculture Organization of the United Nations has pointed out that the lack of organised production and marketing leaves small farmers in Pakistan with little bargaining power (FAO 2012). More recently, the Punjab Livestock and Dairy Development Department (PLDDD 2015) argued strongly that smallholder organisations (such as rural support groups, milk producer groups or associations or cooperatives) can benefit milk producers in many ways and improve their technical knowledge and skills.

A European Commission report by Bijman et al. (2012) stresses that the key functions of marketing cooperatives are improving the bargaining power of their members and letting members benefit from economies of scale. In addition, cooperatives reduce market risks and transaction costs, and strengthen

the competitive position of their members by providing access to credit, extension services, technical knowledge, product innovation, and by guaranteeing compliance with market standards for food safety.

6.1.1 Contract farming: compatibility with smallholder producer organisations

The Punjab Government's Agricultural Department introduced contract farming in 2017 to help integrate farmers into modern value chains. Food processing businesses can make contractual agreements with selected farmers to purchase their produce at agreed prices. The contracting company can also arrange to provide extension services, credit and crop insurance to participating farmers. Thus, market imperfections such as lack of access to affordable credit and insurance, exploitation by middlemen, the consequential lack of bargaining power of small farmers, and the diseconomies of small scale can be overcome through contract farming.

As discussed in Section 6.3 below, contract farming has become an important pathway for modernising the dairy sectors in India and China. Most dairy firms either directly contract with large producers or contract with intermediaries that organise milk collection from small farmers and facilitate delivery of inputs and services to farmers. Nestlé follows this model of contract farming in India and China, and provides technical assistance in respect of animal breeding, animal health, nutrition, and food safety requirements. More than 100,000 dairy farmers in India and 60,000 in China supply milk to Nestlé.

Not all farmers can participate in contract farming, however. According to research published in *World Development* (Fischer and Qaim 2012), the likelihood of participation of small farmers in contract farming depends upon their location, crop types, availability of irrigation facilities and reliable access to electricity and transport facilities, especially for perishable commodities such as milk and fresh fruit. Because perishable goods must be processed within a few hours of harvesting, most contracting firms prefer to work with suppliers within a 60–100 km radius of the processing plant.

Membership of small farmers in a farmer organisation such as a producer company or cooperative (or rural support program in Pakistan) can also be attractive to contracting firms, because such membership reduces transaction costs by providing extension services, technical advice and other prerequisites of contractual compliance and enforcement. In other words, a small farmer may be more likely to succeed in participating in contract farming if she or he is already a member of a producer organisation. Such a smallholder may also feel that their risk has been reduced and they may be prepared to expand or change operations to maximise gains from contract farming by growing new varieties of fruit, using better seeds, or spraying crops in more timely manner.

Participation in contract farming is also highly variable, however, as sometimes contracting firms drop small farmer members, and sometimes small farmers decide to leave contract farming for various reasons. In Ghana, for example, it was found that 56% of surveyed pineapple growers had dropped out of contract farming, either due to a lack of buyers or problems with exporters. Similar experience has been reported in southern India.

Thus contract farming can, but does not always, help small farmers to engage with modern supply chains. Indeed, as noted above, if small farmers have already organised themselves into a producer group or cooperative, their chances of joining contract farming are also improved, because transaction costs for the contracting firm would now be lower. Therefore farmer organisations would still be beneficial for smallholders even in the presence of contract farming.

6.2 Smallholder agriculture: key challenges

6.2.1 The future of smallholders in modern markets

Three main views emerge from the ongoing debate about the future of small farmers in modern agricultural markets. One view is that smallholders cannot compete in modern agricultural markets and that strategies for their future need to be oriented towards facilitating their exit from agriculture (Ellis 2005). The perceived inability of smallholders to compete in modern markets relates to the lack of economies of scale, low level of technologies typically used by small farmers, the lack of access to credit and capital, and the low productivity of animals and fruit trees in smallholder agriculture.

The second, and contrary, view is that smallholder agriculture has higher land productivity and is more efficient in labour-intensive subsectors like dairy and horticulture, because the use of family labour minimises the cost of supervision (Hazell et al. 2007).

The third view about the future of smallholders in modern supply chains is that they can compete in modern supply chains if they can develop small farmer organisations, such as cooperatives, contract farming and producer organisations, which reduce transaction costs of the buyers (Trebbin and Hassler 2012). Indeed, the experience of India, China and several other developing countries suggests that these organisations have successfully transformed subsistence agriculture into commercially viable agriculture (Ahuja et al. 2012). This group of experts acknowledges, however, that such a transformation of small farmers cannot happen in the absence of explicit policy support for connecting small farmers with modern supply chains.

Those who favour migration of (supposedly unviable) smallholders out of agriculture into industry or services are also guided by the traditional pattern of structural transformation in which economic development is accompanied by the movement of surplus labour from agriculture (which has typically low labour productivity) into industry and services (which have high labour productivity). As discussed at length in Chapter 1 of this monograph, this pattern of structural transformation did indeed occur during the phase of economic development of those countries that are now developed countries. The developing countries of today, however, are finding it challenging to replicate the same pattern of structural transformation, especially after the rapid and extensive development of the manufacturing sector in China from 1978 to 2008. The manufacturing industry in most developing countries of today has been unable to generate sufficiently high employment growth to absorb surplus labour from agriculture. Employment growth in the manufacturing sector in today's developing countries (including India, Indonesia, Malaysia, Brazil, Vietnam, Pakistan and Bangladesh) typically peaked long before surplus labour from agriculture was absorbed. The services sector in these countries has also been unable to generate sufficient new employment to absorb surplus labour coming from agriculture. Therefore, agricultural policies in the developing countries of today need to be designed in the light of these facts, not in the context of a model of economic growth that existed in the past but no longer exists today. These agricultural policies must support subsistence farmers to diversify their livelihoods within the rural economy (based on agricultural and non-agricultural employment), rather than forcing them to leave the agricultural sector altogether—because there is simply nowhere for them to go.

6.2.2 Importance of modern supply chains

Smallholders in Pakistan are severely disadvantaged in increasing productivity of animals and fruit trees due to the lack of: (a) access to markets; (b) modern inputs and technical knowledge; (c) access to affordable

credit and insurance; and (d) small farmer organisations that can help in gainfully connecting with modern markets.

Demand for horticultural and dairy products has been increasing strongly in recent years in both domestic and export markets. This is largely in response to the growing incomes of the middle classes and the growth of urbanisation. The fresh food markets are expanding rapidly and provide valuable opportunities for farmers to increase their incomes, provided they can meet the requirements of the new markets.

Farmer cooperatives have played an important role in helping farmers to capture a higher share of the value added in the food supply chain. Marketing cooperatives improve the bargaining power of their members and let members benefit from economies of scale. In addition, cooperatives reduce market risks and transaction costs, and strengthen their competitive position by providing access to credit, extension services, technical knowledge and product innovation, and guaranteeing food quality and safety (Bijman et al. 2012).

6.2.3 How smallholder organisations can help

Competitiveness of smallholders can be enhanced by organising small farmers into groups, which can not only aggregate their supply of marketable surplus, but can also empower their members by facilitating access to credit, extension services, quality inputs, new farming technologies and practices, and improving their management skills. Birthal et al. (2015) cite many examples of smallholder cooperatives in Asian countries that have achieved such benefits for their members. Cooperatives also provide opportunities for poor farmers to become involved in democratic processes, thereby promoting the cause of inclusive economic development.

In a recent study of dairy farming in the Punjab (Pakistan), S. Godfrey (pers. comm. 2018) reported that farmer cooperatives are able to obtain higher prices for their members by negotiating directly with urban milk sellers.

The field studies conducted in Punjab and Sindh as a part of ACIAR project ADP/2010/091 also provide support for smallholder organisations in Punjab and Sindh. While the field studies revealed a dearth of farmer associations, the focus group discussions revealed heavy reliance on informal lending at zero interest rate, demonstrating that local community spirit and solidarity is high within the villages. Farmer cooperatives are more likely to succeed in these conditions, if initial governmental support and leadership can be provided.

6.3 Farmer organisations in Pakistan

6.3.1 Farmer cooperatives

Promoting farmer cooperatives is a provincial subject in Pakistan and all provincial governments facilitate the formation of cooperatives and supervise their operations. In Punjab the Cooperatives Department, and in Sindh the Cooperation Department, play this role. Both departments are established under the *Cooperative Societies Act, 1925* and *Cooperative Societies Rules, 1927* (see website of Cooperatives Department, Government of Punjab: **https://cooperatives.punjab.gov.pk/**).

The cooperative movement flourished in Pakistan in the 1950s and 1960s when small farmers, suffering from the after-effects of migration from India in 1947, welcomed the services of cooperatives. By the mid-1980s, however, the cooperative movement in Pakistan had run into deep problems. The movement had been captured by elite farmers and corrupt operators, and the National Commission on Agriculture (Government of Pakistan 1988) found that only 5% of cooperatives were genuine and financially viable. The government policy of providing interest-free loans for agriculture from 1978 onwards, and the official focus on increasing

the number of cooperative societies, quickly created perverse incentives for recklessness in recruitment of members and utilisation of credit. According to Mustafa and Gill (1998), those who were already in positions of privilege took advantage of the cooperative services, while those in disadvantaged positions did not benefit from cooperatives. The government had neither the capacity nor the readiness to monitor and fix the situation. The cooperative movement had bypassed smallholders almost entirely, with only about 1% of small farmer households being members of cooperatives in 1985 (Rural Credit Survey 1985, cited in Mustafa and Gill 1998).

But there were some positive examples of the cooperative movement in Pakistan during this period. A dairy development project, originally started in 1983 in the Okara District in Punjab in collaboration with the German Technical Cooperation program (GTZ), promoted improved breeds through artificial insemination. In 1992, the project formally became a farmer cooperative under the *Societies Act 1980* and was named *Idara-e-Kissan* (IK). It started milk collections from other regions of Punjab, based on a similar pattern of farmer organisations. In 2004, IK had more than 20,000 members from 519 villages. Access to IK services is available to all households that supply a minimum of 300 litres of milk during a six-month period (FAO 2013).

The Punjab and Sindh governments are now facilitating the formation of cooperative societies for the development of agriculture and horticulture by providing training to the members and employees of the cooperative organisations; providing credit to the members; encouraging saving amongst women; and supervising and monitoring the working of cooperative organisations through regular audits, inquiries, inspections, recoveries of outstanding loans and arbitration of disputes.

In Punjab, for example, the provincial government has helped the formation of cooperative milk societies in collaboration with Plan International Pakistan (an NGO). Small farmers, including women, are the target beneficiaries of this project. Cooperative credit societies, representing the largest subsector of cooperative movement in the Punjab, provide credit facilities to their members.

In recognition of the fact that women's participation in cooperative societies was low, dedicated women's cooperative societies have been formed to help women increase their income and gain respect and status in local communities. These cooperative societies offer training for women in tailoring, embroidery, fabric painting, beauty parlours and other industrial trades.

The Punjab Provincial Cooperative Bank Ltd was established in 1924 as an apex bank to meet the funding requirements of cooperative societies, and gained the status of a scheduled bank in 1955. It plays an important role for the development of the cooperative sector in the province. The Punjab Cooperative Supply and Marketing Federation is another apex society, providing quality agricultural inputs to members of cooperative societies, including tractors at reserve price. Other non-government agricultural networks in Punjab include the KASHF Foundation (100% female members), the AKHUWAT Foundation (40% female members), the TAMEER Bank (34% female members), the FMFB (First Micro-Finance Bank with 34% female members), the KHUSHALI Bank (27% female members), the NRSP Bank (14% female members) and the FINCA (5% female members). All these organisations are providing loans for agricultural and non-agricultural sector development, and all have service charges (mark-up) except the AKHUWAT Foundation, which lends without a mark-up.

As noted above in the chapter on formal credit, a group-based lending approach has been introduced in Pakistan. Under this scheme, loans are made to individual farmers through small farmer groups, where all the members guarantee the repayment of each other's loans and social pressure is used as the intangible collateral. The size of the small farmer group

could be around five to 15 members, either organised by the bank itself or through an NGO. The financial institution provides the loan on the joint guarantee of all member farmers. Only small farmers can become members of these groups.

Similarly, the provincial government of Sindh has recently implemented a program to assist the formation of village organisations (VOs) and farmer cooperatives, with the objectives of increasing agricultural productivity in rural food-insecure areas of the province, enhancing food security through provision of sustainable livelihood programs, and reducing rural poverty through expanded farm and related non-farm employment. The main government interventions under this program include social mobilisation of targeted farming communities, formation of VOs under the Cooperatives Act, creation of a revolving fund for providing inputs as in-kind credit, training of VO members to run cooperative societies, and enhancement of farm productivity through intensive technology guidance under farmer field schools. More than 80 cooperative societies were registered in the province between 2011 and 2013.

These are encouraging indications indeed. However, given the context of the smallholder population in Punjab and Sindh, it is obvious that more needs to be done. As stressed by the Punjab Livestock and Dairy Development Department, the establishment of producer organisations is 'the basic necessity' for the smallholder dairy development, because such organisations can bring many advantages to the producers (PLDDD 2015): 'Empirical evidence suggests that strong producer organizations, particularly based in the dairy sector, also empower communities by enriching their social capital.'

6.3.2 Rural support programs

In addition to cooperatives, Pakistan also has more than 11 rural support programs (RSPs) covering all provinces and regions of the country. Rural support programs are established under provincial legislation as not-for-profit organisations under the patronage of NGOs and with support from international organisations. For example, the National Rural Support Program (NRSP) was established in 1992 as a not-for-profit organisation under Section 42 of *Companies Ordinance 1984*, to alleviate poverty by social mobilisation. The Aga Khan Rural Support Program (AKRSP) is the pioneer RSP in Pakistan and its success is based on active participation in the rural community. Primarily working in the northern areas of Pakistan, the AKRSP has played a major role in organising rural populations for projects in training of farmers in production technologies, value addition (household agricultural products) and marketing. The community participation model of AKRSP was later adopted nationwide through RSPs.

The process of social mobilisation starts with the preparation of a poverty profile of the community that seeks social guidance. The community is then introduced to the philosophy of the RSP, based on which the community can organise itself into a socially viable group called the community organisation. An attempt is made to encourage poor households to join the community organisation. During the initial interactions with the community, genuine activists are identified who commit to support their communities in poverty reduction. A micro-plan is developed for the community organisation based on individual, group and village-level needs. The required resources are arranged to address the priority needs. These resources are pooled by the community, provided by the support organisation or managed through other stakeholders, such as the private sector or public sector service delivery departments, NGOs or donor organisations. The basic principles of all RSPs are the same: broad-based and homogeneous membership and the unanimous decision-making rule.

With support from donors (including the Pakistan Poverty Alleviation Program, the World Bank, DFID and USAID), NRSP's social mobilisation efforts have contributed to helping

people to raise their standard of living, initiate village-wide socioeconomic development, and realise new opportunities for themselves and their children. A study (Khan 2004) found that the NRSP had contributed to a 7.5% additional increase in income of member households in comparison with non-member households.

In 1998, the Government of Punjab established the Punjab Rural Support Program (PRSP). The Sindh Government commenced a Union Council Based Poverty Reduction Program (UCBPRP) in the rural areas of the two districts of Shikarpur and Kashmore. Building on the success of UCBPRP, in 2014 the Sindh Government and the EU established a scaled-up program covering the entire province: the Sindh Union Council and Community Economic Strengthening Support (SUCCESS). The mission of SUCCESS is to develop a policy and budget framework for community-driven development in Sindh from 2015 to 2021. The aim is to increase incomes of 770,000 poor households by 30% and to provide vocational and technical training to an estimated 108,000 community members.

Typically, a community organisation consists of about 15–25 member households. The community organisations are federated into village organisations, each of which must have at least 10% of members from the poorest households (according to the poverty score cards). The village organisations are then federated at the union council level into local support organisations. The latest coverage of RSPs in Pakistan shows that rural support programs cover 3,705 union councils, covering 123 districts, 1,186 local support organisations, and 368,561 community organisations consisting of 6,113,295 member households (RSPN 2015).

Although RSPs are not a substitute for farmer cooperatives or producer companies, membership of an RSP is likely to be conducive to the formation of cooperatives, because it initiates individual farmers in working as members of a larger group for a common purpose.

6.4 Overseas experience

6.4.1 Developed countries

According to the International Cooperative Alliance, more than one billion adults are members of cooperatives worldwide, which provide nearly 100 million jobs around the world. The largest 300 cooperatives in the world are worth $1.6 trillion—equivalent to the GDP of Spain, the ninth largest economy in the world (ICA 2018).

In Europe, farmer cooperatives have been operating for more than a hundred years in dairy, fruit and vegetables, sugar, olives, wine, cereals, pig meat and sheep meat. In Germany, every adult is a member of at least one cooperative and many people are members of several cooperatives. In 2010, cooperatives were responsible for 57% share of the EU dairy market on average (measured by milk collection at first handling and processing stages). In Sweden, 100% of the dairy market was run through cooperatives; in Ireland, dairy cooperatives had 99% of market share; and the corresponding figures were 97% in Finland, 96% in Denmark, 95% in Austria and 90% in the Netherlands. In all EU countries, market share of cooperatives increased between 2000 and 2010. Cooperatives also have a significant market share in fruit and vegetables. In the Netherlands, fruit and vegetable cooperatives had 95% of EU market share, followed by Belgium at 83%, Sweden 70%, and Austria and Denmark more than 50% each.

In Australia, the first agricultural cooperative (the South Coast and West Camden Cooperative Company) was established in the dairy sector in the 1880s, with the aim of improving returns for dairy farmers and removing middlemen from the supply chain. The passage of the *NSW Small Loans Facility Act 1941* paved the way for the establishment of cooperative credit societies, which later became an important component of Australia's financial sector.

Cooperatives in Australia were regulated by the state and territory governments until 2013, when the *Cooperatives National Law* replaced the state-based regulatory system. The *Cooperatives National Law* delivers a modern legislative environment that removes competitive barriers but continues to assure the unique nature of the cooperative structure. The new uniform law is supported by two types of regulations: commonwealth regulations which cover most of the regulatory issues; and state regulations which cover those areas that necessarily are different across the states, such as courts, tribunals and fees. All cooperatives are now free to trade anywhere in Australia.

Despite being a much smaller country than Australia (4.4 million population versus 23 million), New Zealand has surged ahead with respect to farmer cooperatives. An estimated 40% of adult New Zealanders are members of one or more cooperatives and 22% of the country's GDP is generated by cooperative enterprises. Cooperative enterprises in New Zealand are responsible for 99% of the dairy market, 60% of the meat market, 50% of the farm supply market, 80% of the fertiliser market, 75% of the wholesale pharmaceuticals market, and 62% of the grocery market (Bijman et al. 2012). Six of the Global 300 cooperatives are in New Zealand: Fonterra (ranked 31), Foodstuffs (Auckland, ranked 135), Foodstuffs (Wellington, ranked 178), Foodstuffs (South Island ranked 191), PPCC (ranked 182), and Alliance Group (ranked 280). Economic reforms in the mid-1980s led to large-scale amalgamations among cooperatives, reducing the number of dairy cooperatives to only 12 by 1996. The two largest dairy cooperatives, the Waikato-based NZ Dairy Group and the Taranaki-based Kiwi Cooperative Dairies, merged in 2001 and formed Fonterra, the world's largest dairy exporter (Bijman et al. 2012).

6.4.2 Developing countries

6.4.2.1 India

Like Pakistan, India's milk production is also dominated by smallholders: about 78% of India's milk producers are marginal and small farmers (having two to five animals), and together they account for around 68% of India's milk production. These small farmers traditionally do not have access to organised markets due to the lack of an effective system of milk procurement in rural areas. The development of dairy farmer cooperatives is one of several policy initiatives aimed at developing formal milk marketing and processing institutions in the country.

Amul is the largest dairy cooperative in India, based in Anand in the state of Gujarat. Amul started in 1946 with two village societies and 247 litres of milk collected per day. Since then, this model has evolved into a three-tier structure with dairy cooperatives at the village level, federated into a milk union at the district level, and a federation of milk unions at the state level. Now, the Amul model has been replicated throughout the country. In 2012–13, India had 155,000 village dairy cooperatives that procured 12 million tons of milk (9% of the total milk produced in the country) from over 15 million farmer-members (www.nddb.org).

Other examples outside the dairy sector include: a cotton growers' cooperative society called Koutla-B Multi-purpose Cooperative Society (Koutla-B MACS) in Andhra Pradesh; Kesla Poultry Cooperative Society in the tribal-dominated areas of Madhya Pradesh; Mahagrapes as one of the Grape Growers' Cooperative Societies in Maharashtra; and Mother Dairy Fruits and Vegetables Limited (MDFVL), a subsidiary of the National Dairy Development Board (NDDB) that started promoting farmer associations in 1988 in rural areas surrounding Delhi.

The MDFVL has been promoting farmer associations of fruit and vegetable growers, called SAFAL (meaning successful), which are managed and controlled by members

themselves. There are now more than 225 such associations with about 50,000 members in 16 states. Technical guidance on production and postharvest practices is provided by the MDFVL, which also owns more than 400 retail outlets in Delhi.

For cotton farmers, the Koutla-B Multi-purpose Cooperative Society (Koutla-B MACS) was formed in 1996 to avoid exploitation of cotton farmers. In 2011, Koutla-B MACS had 83 member societies, a turnover of Rs40 million and a profit of Rs3.6 million. According to Birthal et al. (2015), this cooperative has now been scaled up as a producer company (see below) with strong backward and forward business linkages.

The Kesla Poultry Cooperative Society was developed by the NGO PRADAN for converting backyard poultry into a viable commercial activity by providing farmers improved breeds, feed, veterinary services support and a market. The state governments have since replicated the model into other parts of the state and into the neighbouring states.

Mahagrapes in Maharashtra provides its partner cooperatives quality inputs and packing material of international standards, information and knowledge on safety standards of importing countries, and facilitates their compliance with these standards. Mahagrapes is now regarded as one of the leading exporters of grapes. Similar value chains have also been developed for mangoes and bananas (Birthal et al. 2015).

In Tamil Nadu, the state government entered into a partnership with a private floriculture firm to establish an export processing zone for cut flowers called Tanflora Infrastructure Park Limited. The state government created basic infrastructure, including roads, electricity, packing houses etc., and the private firm provided technical support, rainwater harvesting and drip irrigation facilities to growers. A large part of the produce is exported to Europe, Middle and Far East, Australia and Japan (Birthal et al. 2015).

Support from governments and international donor organisations has been crucial to the growth and success of farmer cooperatives in India. The government agencies include state government departments of agriculture, the National Bank for Agricultural and Rural Development (NABARD), the Small Farmers Agribusiness Consortium (SFAC), the Rural Livelihood Mission (RLM) of the Ministry of Rural Development, while external donors or facilitators include the sponsoring NGOs and international institutions such as UNDP, DFID and the World Bank.

Despite their success in India, farmer cooperatives have been commonly afflicted by problems including:

- opportunism and free-riding by members who do not contribute to the functioning of their cooperatives
- capture by a powerful minority of members
- capture by commercial interests who promote their own sales/profits
- lack of member commitment
- lack of leadership
- lack of managerial capacity among members and in local rural communities.

Against this experience, a new form of cooperatives—the so-called second-generation cooperatives (Singh 2008)—has emerged in the form of producer companies (PCs) since 2003, after the Government of India amended Section 19A of the *Indian Companies Act 1956* in 2002. The number of PCs in India has increased rapidly since 2003, and by 2011 India had 156 PCs (Singh and Singh 2014), most of which were in Tamil Nadu, Madhya Pradesh, Maharashtra, Gujarat, Mizoram, Punjab, Rajasthan and Andhra Pradesh. In 2014, the number of PCs had increased to 258 (Nayak 2014). The size and scope of PCs varies a great deal. For example, VAPCOL PC has a membership of more than 50,000 spread across six states, whereas Devnadi Valley PC has only 856 members. Some PCs concentrate on only one product (e.g. milk or vanilla), whereas others,

like Nava Jyoti PC, deal with multiple products and activities.

6.4.2.2 China

In China, where the household responsibility system was introduced in 1976, cooperative farming has evolved through three distinct phases: the first marked by the growth of bottom-up self-organising cooperatives (early 1980s to late 1990s); the second phase of government-promoted cooperatives (1996–2007); and the third phase the growth of farmers' professional cooperatives (2007–11) (Sultan and Wolz 2012).

In the wake of the Asian financial crisis of 1997–98, the Chinese Government adopted the model of vertical integration to modernise China's agriculture. Agribusiness firms called 'dragon head enterprises' ('dragon head' leads the procession) were established as leaders for the planned transformation of agriculture. This model was intended to replace small-scale farming of the past with modern agribusinesses, local markets with contract farming and dispersed production with vertical coordination through contracts and cooperation (Zhang and Donaldson 2008). Local governments at provincial, county and municipal levels facilitated commodity-specific cooperatives in line with this model. More than one-fifth of Chinese villages now have at least one farmer cooperative (Jia and Huang 2011). Local governments played a key role in providing the enabling environment for farmer cooperatives by investing in public infrastructure on which new investment in agricultural supply chains could be based.

Contract farming has become an important pathway for modernising China's dairy sector. Most dairy firms either directly contract with large producers or contract with intermediaries that organise milk collection from small producers and facilitate delivery of inputs and services to farmers. Nestlé follows this model of contract farming in China, as well as in India, and provides technical assistance in respect of animal breeding, animal health, nutrition, and food safety requirements. More than 100,000 dairy farmers in India and 60,000 in China supply milk to Nestlé.

6.4.2.3 Vietnam

In Vietnam, the *Cooperative Law* was passed in 1997, about a decade after the *doi moi* reforms. The next 10 years witnessed rapid growth in the number of cooperatives and nearly 20% of farmers joined cooperatives. The functions of cooperatives also expanded during this period to include marketing activities.

The collectivisation of farms in Vietnam had been abandoned in favour of private farming in 1986, but bitter memories of collectivisation lingered on among the farmers who remained suspicious of the cooperatives model for quite some time. Despite this initial suspicion, however, cooperative farming has taken roots in Vietnam in recent years and the growth of farm cooperatives has been helped by the initiatives of some stakeholders other than the farmers themselves. In particular, administrative and business entrepreneurs have provided not only organisational resources, but also business capital and skills for new cooperatives. In other words, ordinary farmers were not always the prime movers in Vietnam for establishing agricultural service cooperatives, and the leadership was provided by other stakeholder groups, including non-farmer business entrepreneurs and government administrators.

6.5 Summary

The above discussion provides strong support for the establishment of small farmer organisations, such as cooperatives, that can transform the livelihoods of Pakistan's smallholders in dairy, citrus and mango farming. These organisations can benefit their members by providing better prices for producers, cheaper and higher quality inputs, better access to technical information, improved credit facilities, better access to improved breeding services, and improved extension and advisory services. The development of local social capital also takes place through political empowerment of smallholders, including women, with stronger advocacy for their welfare needs. Exchange of experience with other farmers also provides opportunities for learning and gaining in confidence.

Small farmer cooperatives generally find it difficult to survive without the assistance of external facilitators. This is due to weaknesses in capacity of members and communities for internal management of cooperatives. Often, cooperatives that are formed to improve smallholder access to markets remain focused on marketing only and do not extend their operations to providing credit, extension services and farm inputs. Thus, governments need to broaden their strategies to aim for a holistic improvement in smallholder livelihoods. Capacity building and community empowerment must be the key elements of these strategies.

Contract farming has also been successful in several countries in providing small farmers the benefits of scaling up by aggregation.

In addition, the public sector also needs to attract private sector investment for rural enterprises based on value addition in livestock and dairy farming and horticulture. Accordingly, it is essential that the development of small farmer organisations be viewed as an integral part of a broader strategy for improving livelihoods of smallholder households in Pakistan. As noted above, the Vision 2025 has embraced the goal of inclusive economic development and should provide a natural context for all initiatives aimed at improving the livelihoods of smallholders, including the development of farmer cooperatives. The provincial governments should provide the basic infrastructure for linking smallholders with agricultural markets. In particular, they must provide the legal and regulatory frameworks in which farmer cooperatives can function without being captured by elites or corrupt operators.

The following points, emerging from the international experiences, are also worth noting.

- First, rising demand for dairy products and fruits (including citrus and mangoes) in domestic and international markets provides valuable opportunities for raising incomes of farmers in these subsectors of agriculture.
- Second, most developing countries recognise that modern supply chains prefer to source supply in bulk to minimise transaction costs, and they insist on strict food safety standards. Smallholders can engage with these supply chains only if they form their own self-help groups, community organisations, cooperatives or producer companies. By doing that smallholders can reduce transaction costs, equip themselves with the requisite knowledge and capabilities to meet the quality standards, and increase their bargaining power by supplying in bulk.
- Finally, the required transformation in smallholder organisations has occurred in all countries with active government support across a wide range of services. Although farmer cooperatives in the developed countries emerged primarily as bottom-up organisations of farmers, in many developing countries their growth has been led by government policies for modernising subsistence agriculture, reducing rural poverty, and bringing about inclusive economic development.

6.6 Recommendations

RECOMMENDATION 6.1

Strengthen provincial governments' efforts to develop small farmer organisations for making Pakistan's economic development more inclusive, as envisioned by the Pakistan Vision 2025.

Motivation

Development of smallholder farmer organisations should be viewed as an integral part of broader strategies for achieving inclusive economic development in Pakistan. The Pakistan Vision 2025 provides a natural platform for policy support to smallholders.

RECOMMENDATION 6.2

Strengthen regulatory frameworks for small farmer organisations.

Learning from past experiences in Pakistan and abroad, provincial governments of Punjab and Sindh must strengthen legal and regulatory frameworks within which small farmer organisations can function without being captured and exploited by elites or corrupt operators. This may be done, for example, by limiting the membership of smallholder cooperatives to smallholders only. The governance of these organisations must be based on transparency and accountability combined with independent external auditing of their financial accounts.

Motivation

The motivation of this recommendation is to increase trust in farmers' associations and cooperatives, by demonstrating that exploitation of members or corruption will not occur.

RECOMMENDATION 6.3

Develop rural enterprise policy and strengthen capacity building of members of farmer organisations to promote rural transformation.

Provincial governments should develop rural enterprise policy for setting up rural mini-enterprises and provide incentives to small farmer organisations for capacity building and training of their members for diversification of household livelihoods.

Motivation

The motivation of this recommendation is to enhance the skills and the confidence of members of smallholder cooperatives or producer organisations to promote rural transformation by establishing rural non-farm enterprises.

RECOMMENDATION 6.4

Channel government services through farmer organisations.

Support for small farmers should be provided by provincial governments by supplying services such as superior germplasm, artificial insemination, feed and fodder supplies and credit through smallholder community organisations and cooperatives.

Motivation

The motivation of this recommendation is to provide an incentive for smallholders to become members of producer companies or cooperatives.

RECOMMENDATION 6.5

Use extension agents to promote formation of farmer organisations.

Extension workers should be encouraged to promote the formation of small farmers' common interest groups for enabling smallholders to integrate with modern supply chains. Extension agents should be given training in this regard with the support of donor institutions, such as the World Bank, ACIAR, ADB and NGOs.

Motivation

The motivation of this recommendation is to avail of the services of extension staff in dispelling any doubts and suspicions about the benefits of cooperation. Because extension workers come into close contact with smallholders, their influence can be harnessed for bringing about an important transformation in smallholder farming.

RECOMMENDATION 6.6

Build networks of milk marketing centres.

Motivation

The motivation is to use milk collection centres to encourage formation of milk producer groups. As milk can be collected at one site in sufficient quantity, milk collection centres can serve as hubs for the supply of other inputs, such as fodder, seed, fertiliser and small equipment. According to the Punjab Livestock and Dairy Development Department (PLDDD 2015), the formation of milk producer organisations could be started around milk collection centres because members will receive immediate benefits of cooperation.

The middlemen in the dairy supply chains should be also encouraged to integrate their operations with milk producer organisations. For example, in milk deficit areas middlemen may be given exclusive contracts with milk producer organisations.

If these centres are managed by the communities and financial returns from the centres are channelled back to the producers, this can create a win–win situation for all involved. For this reason, management training should be provided by the government to milk producer organisations in respect of milk production, marketing, value addition, and financial and business management techniques.

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7 Improving gender equality in Pakistan

7.1 Introduction

Low empowerment of women is a serious and entrenched problem in many developing countries, including Pakistan. The Sustainable Development Goals (SDGs) of the United Nations include a specific goal (Goal 5) on gender equality and ending all forms of discrimination against women and girls. Affording women equal rights to economic resources such as ownership of land and property is an essential target for achieving this goal. Improving gender balance is not only a social issue, it is also a major economic issue.

Women comprise almost half of the population in most countries, and their participation in economic activities can significantly increase incomes and wealth of their families, communities and nations. A recent report by the McKinsey Global Institute (Woetzel et al. 2015) argues, for example, that improving gender balance could add US$12 trillion to the global economy (worth around US$100 trillion). Consider also, in this context, the progress being made in Bangladesh by improving women's access to credit, education and health facilities:

> *Thanks to efforts by the nongovernmental organizations Grameen Bank and BRAC, along with more recent work by the government, Bangladesh has made significant strides toward educating girls and giving women a greater voice, both in the household and the public sphere. These efforts have translated into improvements in children's health and education, such that Bangladeshis' average life expectancy is now 72 years, compared to 68 years for Indians and 66 years for Pakistanis. ... The Bangladesh government also deserves credit for supporting grassroots initiatives in economic inclusion, the positive effects of which are visible in recently released data from the World Bank. Among Bangladeshi adults with bank accounts, 34.1% made digital*

> *transactions in 2017, compared to an average rate of 27.8% for South Asia. Moreover, only 10.4% of Bangladeshi bank accounts are "dormant" (meaning there were no deposits or withdrawals in the previous year), compared to 48% of Indian bank accounts. (Basu 2018, p. 1)*

A particular aim of ACIAR project ADP/2010/091 was to make policy recommendations for improving gender equality in Punjab and Sindh, especially in agriculture, livestock and dairy sectors. In this chapter, we address this particular topic. Section 7.2 sets the context by describing the general situation of gender inequality in Pakistan. Section 7.3 outlines the roles of federal and provincial governments in relation to gender equality together with some recent policy initiatives of these governments. The findings of two ACIAR field studies of gender inequality in rural Punjab and Sindh are outlined in Section 7.4. Section 7.5 provides a brief summary and some conclusions before policy recommendations are made in Section 7.6.

7.2 Gender equality in Pakistan

Twelve years ago, when the World Economic Forum released its 'Global gender gap report 2006', Pakistan was ranked 112th out of 115 countries (World Economic Forum 2006). Pakistan's ranking in gender equality has not improved since then. Indeed, its ranking has fallen further—in the 'Global gender gap report 2017' the World Economic Forum ranked Pakistan 143rd out of 144 countries, just one rank above the lowest ranked Yemen (World Economic Forum 2017a). All other countries, many with large Muslim populations including Afghanistan, Bangladesh and Indonesia, have higher ranking than Pakistan. For example, Bangladesh is ranked 72, India 87 and Indonesia 88. Pakistan's relative global ranking in gender equality puts into perspective the observation of FAO (2015) that 'there is a tremendous potential' in Pakistan to unleash the economic and social benefits of empowering women.

The concept of gender equality is a multidimensional concept that is impacted by, and reflects, women's legal rights to ownership of assets; access to employment, education, training, health services, extension services and credit; and the extent to which legal and constitutional rights are honoured in practice by employers, families and society at large. Accordingly, the rankings in the global gender gap reports are based on comparisons across the following key dimensions:

- economic participation and opportunity (e.g. wage inequality)
- educational attainment (e.g. literacy)
- health and survival outcomes (e.g. life expectancy)
- political empowerment (e.g. women in parliament).

As the figures in Table 7.1 show, Pakistan's rankings are low with respect to wage equality, literacy, and health and survival. While many women in Pakistan participate in economic activity—as labourers, householders, factory workers, farm workers, teachers, managers, politicians and even ministers and diplomats—their wages for similar work are typically lower than male wages. Similarly, Pakistan has low ranking with respect to literacy rates and healthy life expectancy. Pakistan's ranking in political participation, however, is not much different to the other countries shown in Table 7.1. Figures in Table 7.1 also show Pakistan's low standing with respect to financial inclusion of women, as only 3% of adult women in Pakistan had an account with a financial institution, whereas the corresponding figures are much higher in the other countries. This reflects the low level of economic participation and ownership of property and other assets in Pakistan.

Pakistan's ranking in political participation is fair. Pakistan had a female leader of a political party (Mohtarma Fatima Jinnah from Pakistan Muslim League) in 1965, then a female Prime

Table 7.1 Gender equality rankings out of 144 countries: selected Asian countries, 2017.

Dimension/Rank	Pakistan	China	India	Indonesia	Bangladesh
Overall ranking	143	99	87	88	72
Wage equality for similar work	114	70	103	51	122
Literacy rate	138	95	124	89	110
Healthy life expectancy	130	112	71	73	103
Women in parliament	70	61	112	89	74
			% of adult population		
Women with an account at a financial institution	3%	76%	43%	37%	25%

Source: World Economic Forum (2017b).

Minister in 1988 (Mohtarma Benazir Bhutto from Pakistan People's Party), and then Pakistan's National Assembly had a female Speaker (Fahmida Mirza) from 2008 to 2013. Mrs Naela Chohan has been Pakistan's High Commissioner to Australia in recent years, and several of Pakistan's ministers and heads of government departments are females. And of course, the inspiring story of Malala Yousafzai is well known all over the world. Having survived a nearly fatal attack on her by Taliban in the SWAT Valley of Western Pakistan in 2012, Malala fully recovered and resumed her strong advocacy for women's education and empowerment in Pakistan, for which she was awarded the Nobel Peace Prize in 2014. However, these are exceptions and do not reflect normal reality of women's position in Pakistan, where women in positions of power and authority are far fewer than women's share in Pakistan's population (more than 49%).

Table 7.2 depicts the status of women in education, economic activities and political empowerment relative to men in Pakistan. Pakistan ranks 136 out of 144 countries in education and attainment according to the 'Global gender gap report 2017' (World Economic Forum 2017a). Enrolment of women in primary education is 67.9%, dropping to 38.7% in secondary education and to only 9.2% in tertiary education. The female literacy rate in Pakistan is only 44.3% in comparison with 69.1% for males.

In economic opportunity and contribution, Pakistan is ranked 2nd lowest of the world, i.e. 143 of 144 countries. Labour force participation of females is only 25.7% in comparison with male labour participation of 85.7%. Moreover, women in aggregate receive only US$1,610 in annual income compared with US$8,695 for men. Employment in senior roles is extremely low for women at 3.0% against 97.0% for men.

In terms of health and survival variables, Pakistan's ranking at 140 out of 144 countries is no better than its overall ranking. In terms of political empowerment, Pakistan's ranking of 95th looks a little more respectable, although despite having 20.6% women in Parliament, there were few female ministers in Pakistan.

Women empowerment is defined as a process of women gaining greater control over, and responsibility for, their livelihoods. It also refers to women's ability to influence the direction of their social position and mobility. Social empowerment is a process by which women enjoy their life with dignity and autonomy, which strengthens social relations and the position of women in the society. The psychological empowerment of women refers to women's control over their participation in decision-making.

According to a recent report by UN Women (Zaidi et al. 2018), only 19% of Pakistani women are in paid employment while 60% work as unpaid workers on family farms and enterprises. The aggregate value of their

Table 7.2 Pakistan gender gap in education, economic participation, health and survival and political participation, 2017.

Category	Female	Male	'Global gender gap report 2017' rank
Education attainment			**136 out of 144 countries**
Literacy rate (%)	44.3	69.1	
Enrolment in primary education (%)	67.9	79.4	
Enrolment in secondary education (%)	38.7	48.8	
Enrolment in tertiary education (%)	9.2	10.6	
Economic participation and opportunity			**143 out of 144 countries**
Labour force participation (%)	25.7	85.7	
Estimated earned income (PPP, US$)	1,610	8,695	
Legislators, senior officials and managers (%)	3.0	97.0	
Health and survival			**140 out of 144 countries**
Health, life expectancy (years)	58.1	57.5	
Political empowerment			**95 out of 144 countries**
Women in parliament (%)	20.6	79.4	
Women in ministerial position (%)	0.0	100	
Years with female head of state (last 50)	4.7	45.3	

Source: World Economic Forum (2017a).

unpaid work (using comparative median wages) is estimated at Rs693 billion, equivalent to 2.6% of Pakistan's GDP. Of rural employed women, 82% are engaged in agriculture, forestry and fisheries. Of these, 52% are in livestock.

Even for those who get into the labour market, however, challenges are enormous, as on average women in Pakistan earn less than men for doing the same work. Furthermore, for women working in the formal sectors of employment, the lack of supportive facilities such as child care, transport and accommodation is a major hurdle. Women also lack ownership of productive resources and credit for self-employment.

In a fundamental sense, education is the most powerful force for empowering women in any society, because education increases not only technical knowledge, but also confidence for engaging constructively in economic, social and political spheres of life. It deepens one's understanding of equal rights and enables people to demand greater equality and justice for all. Although Pakistan's Constitution recognises education as a basic right to its entire population, of which more than 49% are women, the lack of education facilities in Pakistan remains a major disadvantage for women. For example, of the 45,044 primary schools in Sindh, there were only 7,283 primary schools for girls (Mangan and Nangraj 2016).

Women in rural areas suffer worse conditions than those in urban areas due to greater dominance of tribal, feudal and patriarchal traditions, as well as relative lack of employment opportunities, education and training facilities, and agricultural extension services. Mangan and Nangraj (2016) point out that:

> *...in rural areas gender discrimination starts from early childhood and females are taught throughout their lives that when it comes to their equality with males in the family, they should not value themselves as equals. Women cannot participate in household decision making. They cannot take decisions even regarding their own education, health and marriage etc. (p. 6)*

Ownership of property and other assets by women is still not normal in Pakistan, especially in rural areas. For example, 96% of women in Pakistan do not own land and while half of them work on the farms, 75% of these women are paid in-kind for their farm work (FAO 2015, p. 110).

Rural women also have limited access to health services, including antenatal and postnatal care by skilled birth attendants. As a result, 57% of rural mothers are underweight in comparison with 44% of urban mothers (Mangan and Nangraj 2016). Even in Punjab, which is the largest and most productive province of Pakistan, only 52% of women have a normal body/mass index, while nearly 18% of women are underweight and 30% are overweight. And related, 40% of children aged below 5 years in Punjab are stunted (FAO 2015).

FAO (2015) sums up its report 'Women in agriculture in Pakistan' with the following statement:

> *Considering the current percentage of women in total population of Pakistan (49.19%), growth and development in the country will remain a dream till the time women are mainstreamed in the economy. This is possible only by providing them an enabling working environment and culture. Agriculture is the popular activity in the rural setup so many opportunities exist in this sector for furthering women's development. Although women contribute to agriculture activities, still there is a tremendous potential for increasing their share and income. (p. 113)*

FAO (2012) cites many studies confirming that rural women are responsible for looking after livestock, fodder collection and cleaning of animal sheds. In spite of being highly productive in these tasks, women receive insufficient attention from agricultural and livestock extension services, as these services still remain mainly focused on male farmers and are not gender inclusive. Thus, rural women are deprived of opportunities for increasing their capabilities by training.

7.3 Federal and provincial government policy initiatives

7.3.1 Federal initiatives

Gender equality and women's development is an important objective of the Pakistan Vision 2025, to help achieve inclusive development in the country. Pakistan is also committed to meeting the SDGs, including Goal 5 (gender equality and ending all forms of discrimination against women and girls).

Before the 18th Constitutional Amendment in 2010, Pakistan's federal government was responsible for women's affairs through its Ministry of Women Development (MoWD). The National Commission for Status of Women had been established in 2000 as a statutory body entrusted with the mission of women empowerment. This was followed in 2002 by the formulation of the National Policy for Women Development and Empowerment. After the 18th Constitutional Amendment, responsibility for several functions, including those of MoWD, was transferred to provincial governments. Although the National Commission for Status of Women was retained as the national body, provincial governments established their own provincial commissions on the status of women and women development departments. These changes have created greater scope for regional differences in respect of women empowerment, because provincial governments do not act together on improving gender equality, and progress on women's empowerment continues to be uneven. The devolution also created the need for greater coordination between federal and provincial governments on gender issues. In reality, however, coordination between provincial and federal governments on policies for empowerment of women appears to have weakened in the wake of devolution.

The Benazir Income Support Program (BISP), a targeted unconditional cash transfer program, was launched in 2008 to provide

basic income to poor women with the objective of consumption smoothing and providing a safety net for women. Over time, BISP would also help to achieve the SDGs of eradicating extreme poverty and empowerment of women. Established under an act of parliament, BISP provides support exclusively to women. Economic deprivation, regardless of political affinity, racial identity, geographical location or religious beliefs, is the sole criterion for selection of BISP beneficiaries. BISP operates under the executive patronage of the Prime Minister and the President of Pakistan is its Chief Patron. Specific goals of BISP are to:

- enhance the financial capacity of poor people and their dependent family members
- formulate and implement comprehensive policies and targeted programs for uplifting underprivileged and vulnerable people
- reduce poverty and promote more equitable distribution of wealth especially for low-income groups.

The Government of Pakistan has also fixed a 10% quota for women in public sector employment. Federal budgetary expenditure on pro-poor sectors (agriculture, education, health, rural development and low-cost housing) has also increased in recent years, growing from 7.7% of GDP in 2013–14 to 9.5% of GDP in 2016–17 (Government of Pakistan 2018). Some other specific federal government initiatives for empowerment of women include:

- Information Technology (IT) policy 2016, to encourage and assist the training and employment of women in IT
- Search For Common Ground Pakistan (SFCG), to strengthen the status of women representatives for effective governance
- Local Government Ordinance (LGO, 2001), reserving 33% of seats in local government for women
- National Program for Women's Political Participation (2002), an integrated approach to endorse women's political participation
- *Protection Against Harassment of Women at Workplace Bill 2009*
- Gender Management Information System (GMIS)
- Gender Reform Action Program (GRAP), which endorses gender equality
- *Anti-Rape Law (Criminal Law Amendment) Act, 2016*
- *Anti-Honor Killing Act, 2016*.

7.3.2 Gender initiatives in Punjab

Within Pakistan, gender inequality is very different from one province to another and between rural and urban populations. These differences reflect economic, social and cultural differences. However, some of the common factors determining current gender outcomes are: (a) lack of education; (b) lack of paid employment opportunities; and (c) inadequate legal and judicial protection of female rights and privileges.

The Punjab Government has taken several steps to improve gender equality in the province in recent years. It launched the Punjab Women Empowerment Package 2012 to improve social and economic status of women in the province. The package included legislative responses to critical problem areas, including the right of inheritance for females and violence against women. Two years later, the Punjab Government launched the Punjab Women Empowerment Package 2014 on International Women's Day. The aim of this package is to advance the status of women in the province through safeguards, legislative action and increased representation of women in government institutions. Specific aims include skills development in marketing; training for livestock management, animal production and protection, and poultry husbandry; vocational training for women belonging to minority communities; and providing space for women to set up small women-only bazaars with collateral through

the Rozgar Bank in order to support women micro-entrepreneurs in rural areas (FAO 2015).

The *Punjab Fair Representation of Women Act 2014* ensures 33% representation by women on all boards of statutory bodies and public sector companies. The minimum quota for women's employment was also raised to 15%.

According to an (undated) report by the Punjab police department, the Punjab Government's gender-related initiatives also include an amendment of the land revenue legislation to facilitate women's accession to legal title of inherited property.

Both Punjab and Sindh passed legislation against violence against women in 2016. According to the Punjab police department, the promulgation of Punjab's *Prevention of Violence Against Women Act 2016* has resulted in a sharp reduction in reported cases of violence against women. The *Punjab Prevention of Harassment at Workplace Act 2012* had been promulgated earlier and the Office of Ombudsperson has been established. Of the total 709 police stations in the Punjab, 680 police stations have established female help-desks.

Other notable progress in Punjab includes the following:

- several women-only universities have been established since 2012
- women's quota in public sector jobs has been increased from 5% to 15%
- both parents are now entitled to maternity/paternity leave
- the Punjab Day Care Fund Society funded 54 day-care centres benefitting 1,500 families
- the Women Development Department has established 16 working women's hostels across Punjab, and 5,000 women have benefitted from them in the past two years
- the number of reported honour killing cases dropped from 404 in 2013 to 181 in 2017
- the number of female extension workers in Punjab has increased to 77 and is expected to increase further (correspondence from the Punjab Directorate General, Agriculture Extension and A. R., dated 11 May 2018).

7.3.3 Gender initiatives in Sindh

Sindh is the second largest province of Pakistan, contributing around 33% of national GDP. Rural women are heavily involved in various activities of crop farming, livestock and dairy, and poultry. According to FAO (2015), rural women in Sindh work on average 12–14 hours a day, but their role and the extent of their contribution has not been recognised: 'Getting women their share in income based on their labour input and access to land ownership can help pull them out of poverty and increase their income' (p. 128). Rural women's wages are always lower than male wages, and lack of access to education, vocational training and credit holds women in poverty and vulnerability. Overall literacy rate in Sindh is 60% (72% for men and 47% for women). Maternal anaemia is high at 62% of pregnant mothers, and around 50% of children under five years of age are stunted.

The *Sindh Commission on the Status of Women Act* was passed in 2015 to establish the Sindh Commission on the Status of Women. The aims of this commission include examining government policies and programs for gender equality, women empowerment and political participation. Until recently, however, the Sindh Government had not yet appointed the Chairperson of the Commission (*The Express Tribune*, 5 September 2017).

The Sindh Rural Support Program (SRSP) was initiated in 1995 to promote continued progress in Sindh specifically in its rural areas. Special importance is given by this program to socially marginalised groups and women. Major initiatives taken by the program are the following:

- the SRSP implemented the Community Based Management of Acute Malnutrition

(CMAM) project in collaboration with United Nations International Children's Emergency Fund (UNICEF) for mother and child nutrition health care
- micro-credit and enterprise development program
- the launch of universal primary education in collaboration with the National Commission for Human Development to ensure 100% enrolment of girls and boys in the government schools at primary level
- agriculture and livestock management programs for community members including women.

As Dr Razia Sultana, the Vice-Chancellor of the Shaheed Benazir Bhutto Women University (SBBWU), noted in her address at a seminar commemorating National Women's Day on 12 February 2018, there is a strong drive in society to educate daughters and bring them into the workforce (press release on the SBBWU website).

In spite of these legislative initiatives by federal and provincial governments for improving gender equality in Pakistan, implementation of gender-related policies remains weak and uneven across the country. As a result, the situation in respect of gender equality differs from one province to another, and between urban and rural women. For example, more than three-quarters of rural non-farm employment in Punjab is informal and government regulations on employment quotas and wage equality are often ignored.

7.4 ACIAR surveys

This section provides a summary of the relevant findings of two separate surveys that were conducted by two ACIAR projects under ASLP-2 (Agricultural Sector Linkage Projects—Phase 2), namely 'Social research to foster effective collaboration and strengthen pro-poor value chains' (ASEM/2010/003) and 'Enabling agricultural policies for benefitting smallholders in the dairy, citrus and mango industries of Pakistan' (ADP/2010/091).

The survey conducted by the social research project in seven districts of Sindh in 2014 revealed that, although females in 66.25% of rural households in the study area were involved in agriculture and livestock, no regular agriculture or livestock extension services were available for females. Nearly 64% of female respondents said that they needed agriculture and livestock extension services to build their capacity in value addition and marketing. They emphasised that they needed the services of female extension workers to help develop their entrepreneurship and market linkages to start their own businesses. Their preferred areas for capacity building were development of clean vegetable nurseries, fruits and floriculture nurseries, kitchen gardening, grain storage, livestock management and handicrafts.

On the basis of this survey, the social research project developed a Female Agriculture and Livestock Entrepreneurship Service. The model was tested at the focal village of Hot Khan Laghari in Mirpurkhas District. Several women who were trained by female volunteer extension workers subsequently started their own businesses, such as making mango pickles, vegetable and mango nurseries, ice cream making, sewing and kitchen gardening (Mangan and Nangraj 2016).

The second survey was conducted by the enabling policies project in 2016 with the aim of examining the level of female empowerment in Punjab and Sindh, including the sociocultural and economic determinants that influence

women empowerment across the following six dimensions:

- cognitive dimension: women's awareness about rights, empowerment in community participation and education
- psychological dimension: women's role in decision-making, level of formal and informal training, and access to market and information
- political dimension: women's empowerment in political participation and decisions
- legal dimension: utility of extension services available, level of health facility and role of NGOs and other international donors in controlling gender balance
- economic dimension: women's access to credit, control of physical assets and level of participation in off-farm income-generating activities
- social dimension: level of women's participation in community organisations, welfare societies and inter-connectivity with society, peer groups, creditors and providers of physical assets.

This survey was conducted in the villages of Bagrian and Tehsil Shujabad in District Multan and Duthro Sharif and Tehsil Shadadpur in District Sanghar. A sample of 60 respondents (30 landless women or smallholders for each province) was interviewed. Respondents were selected by a purposive sampling technique, a non-probability sampling characterised by selecting the most relevant households who can provide information related to the study. The triangulation approach was used to assess the internal validity and reliability of research findings (Carter et al. 2014).

Information gathered about the women's access to extension services revealed that 20–25% of the surveyed women had no access to these services, although most of the surveyed villages did have agriculture and livestock extension services. The women did not interact with male extension workers. In both Punjab and Sindh, only 10–15% of the women surveyed had received training for nursing, stitching and teaching. Thus, the overall level of participation of females in skill development programs was found to be low.

In respect of girls' education, if the girls needed to travel to schools or colleges, parents were often reluctant to allow them to travel due to domestic or social constraints. In respect of women's participation in decision-making, it was found that although half of the surveyed women said that they participated in the family decisions, the male members of the household made virtually all major decisions. Regarding political involvement, it was found in both provinces that, although almost all the women cast votes, the male members of the family made the decision regarding whom their vote should support. Rural women rarely contested elections themselves.

7.5 Summary and conclusions

An objective of ACIAR project ADP/2010/091 was to make policy recommendations for empowerment of women in Punjab and Sindh, and this topic was addressed in this chapter. Discrimination against women is a serious and entrenched problem that Pakistan shares with many other developing countries. The issues involved in empowerment of women are multidimensional and are impacted by women's legal rights to ownership of assets; access to employment, education, training, health services, extension services and credit; and the extent to which legal and constitutional rights are honoured in practice by employers, families and society at large.

The 'Global gender gap report 2017' (World Economic Forum 2017a) ranks Pakistan 143rd out of 144 countries—just above the lowest ranked Yemen. Many other countries with large Muslim populations, including Afghanistan, Bangladesh and Indonesia, have higher ranking than Pakistan. Pakistan ranks 136 out of 144 countries in education attainment. Labour force participation of females is only 25.7% in comparison with male participation of 85.7%.

A combination of social attitudes and the lack of appropriate facilities for education, training and healthcare for women is responsible for this situation, especially in rural areas. In a fundamental sense, education is the most powerful force for empowering women in any society, because education increases not only technical knowledge, but also self-confidence for engaging constructively in economic, social and political spheres of life. Rural women in Pakistan have limited access to educational institutions. Their access to health services is also poor, including antenatal and postnatal care by skilled birth attendants. Employment opportunities are limited, but even for those who get into the labour market, women in Pakistan earn less than men for doing the same work. The aggregate value of their unpaid work is estimated at Rs693 billion, equivalent to 2.6% of Pakistan's GDP.

There are also wide gender disparities among the provinces and between urban and rural areas of Pakistan. For example, gender disparity is worse in Sindh than it is in Punjab. The Government of Pakistan and the provincial governments have passed a swath of laws and regulations for improving the status of women, but implementation of these laws and regulations remains weak. While there is evidence of a strong drive in society to educate daughters and bring them into the workforce, opportunities for education and employment are rare in rural areas of Pakistan.

Surveys conducted as part of ACIAR projects show that regular agriculture and livestock extension services were not available for females. This is partly due to the custom that women do not interact with male extension workers and partly because there are not enough female extension workers to cater for their needs. In respect of girls' education, if the girls need to travel to schools or colleges, parents were often reluctant to allow girls to travel, due to domestic or social constraints.

Several recommendations are made in the following section to address these issues.

7.6 Recommendations

RECOMMENDATION 7.1

Strengthen compliance, especially in rural areas, with laws for achieving gender equality in employment, domestic settings, local communities, and in broader society. Establish a national taskforce to investigate the causes of low compliance with laws at present and to recommend ways to make better progress from now onwards.

Motivation

There are laws at federal and provincial level to promote gender equality in Pakistan, but compliance with legislation is quite low, and uneven across the provinces. The motivation of this recommendation is to strengthen implementation, especially in rural areas, by deepening the understanding of factors that are responsible for low compliance.

RECOMMENDATION 7.2

Establish realistic targets for achieving wage parity between men and women for similar work in each province and report annually on progress towards these targets. Collect objective data and publish regularly on progress made by each jurisdiction. By way of encouragement and competition, reward the leading achievers each year.

Motivation

Wage inequality exists in most countries, including the developed countries. The motivation for this recommendation is to get stronger official commitment to clear pathways for achieving greater wage equality in the next 5–10 years. The monitoring and reporting should ensure participation of all provinces in moving towards their respective targets and competing with one another.

RECOMMENDATION 7.3

Increase provincial funding for women's college and university education and also encourage private sector and NGOs to invest more in women's education and training, especially in rural areas.

Motivation

College education is essential for decent employment. Currently only 4% of rural women in Pakistan have college and university degrees. The motivation for this recommendation is to raise the level of financial commitment of government and non-government providers to improve women's access to post-secondary education, particularly in rural areas.

RECOMMENDATION 7.4

Establish a national taskforce to make recommendations on how technologies can help rural women access credit, market information and technical training for setting up their own small rural businesses.

Motivation

Technologies have the potential to liberate women, especially rural women, from the various gender-based customs and restrictions on their movement outside their home. Technologies can also open access to distance education and training, overcoming the hurdles of geographic isolation.

RECOMMENDATION 7.5

Encourage banks and microfinance institutions to provide loans to rural women who have gained formal training in fruit production, livestock rearing and food processing, and other ways of value addition.

Motivation

The motivation for this recommendation is to improve women's access to affordable credit so they can improve productivity of their assets and start agribusinesses for increasing household incomes.

RECOMMENDATION 7.6

Strengthen coordination among federal and provincial agencies responsible for women's empowerment and encourage them to speed up the implementation of recommended policies.

Motivation

Progress towards women's empowerment is highly variable across Pakistan's provinces. While this is often rationalised in terms of social and cultural differences, there is scope for improving performance by capacity building and greater transparency in reporting.

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8 Policy implementation

8.1 Introduction and background

As noted in earlier chapters, the aim of ACIAR project ADP/2010/091 was to develop enabling policies for improving livelihoods of small farmers. This aim also aligns strongly with a major objective of the Pakistan Vision 2025, namely to bring about inclusive economic development in Pakistan. The importance of achieving inclusive growth in Pakistan as a core national priority is also reiterated in the 'Pakistan Economic Survey 2017–18' (Government of Pakistan 2018), which declares that 'Pakistan has to achieve inclusive economic growth' (p. 1).

Achieving inclusive growth requires a multipronged growth strategy focused on increasing productivity and employment. The key aspects of such a growth strategy must include diversification of the rural economy, increased engagement with global value chains and expanded participation of small and medium-sized farmers and rural enterprises in international trade. Punjab's SMART Project is also aimed at addressing lagging growth in agriculture in order to lift rural employment and incomes (World Bank 2017b). These growth challenges are not new and have been discussed in Pakistan for quite some time. For example, in its report to the Planning Commission in 2010, the Working Group on Agriculture and Food Security (WGAFS) argued that Pakistan's agricultural sector had developed a dualistic structure, as 86% of farm households owned less than 50% of farmland, and the need for improving the viability of smallholders was urgent. It said that agricultural growth in Pakistan had not benefited the rural poor to the extent it was expected (WGAFS 2010).

Until recently, agricultural policies remained focused primarily on major crops, and most of the benefits of policy support accrued mainly to large farmers and industrial enterprises

associated with major crops. Diversification of Pakistan's agriculture has been limited.

The policy challenge has been how to revitalise smallholder agriculture, in which small farmers have little effective voice in governance structures and policymaking. Given this background, the discussion and the recommendations made in the previous chapters are highly important for the future growth trajectory of Pakistan's economy, the revitalisation of its agriculture, and the diversification of its rural economy. Supported by the right policies, small farmers can play a crucial role in achieving these goals. As discussed in the previous chapters, the main objectives of government policies must be to increase small farmers' incomes, generate rural non-farm employment, increase agricultural productivity, and increase export of agricultural commodities, especially dairy products and citrus and mangoes.

This chapter deals with the challenges of implementation of policies recommended in the previous chapters. The importance of the following two points has persuaded us to devote a separate chapter to the implementation of our recommendations. The first point is that government policy interventions are crucial for improving small farmers' access to formal credit, extension services, agricultural markets and producer organisations. It is not possible to make progress without the implementation of policy interventions recommended here. The second point is that no matter how good any policy looks on paper, its benefits would always depend on the effectiveness of its implementation. The literature on public policies is replete with examples of excellent policies that failed to deliver the promised outcomes, because of ineffective implementation. With this belief, we proceed in this chapter to outline the key features of effective implementation of our recommendations.

The rest of the chapter is organised as follows. In Section 8.2, we point out that there is a high degree of synergy between our recommended policies and the focus of several other existing agricultural initiatives of federal and provincial governments in Pakistan. This complementarity suggests that policies recommended in this monograph would also help in achieving the goals of, for example, the Pakistan Vision 2025, the National Food Security Policy, the Punjab Growth Strategy 2018, the Punjab Livestock and Dairy Development Policy 2015, and the Sindh Agricultural Growth Project. In Section 8.3, we outline the desirable features of an effective policy implementation framework. In Section 8.4, we discuss the expected benefits that could flow from successful implementation of our recommendations. In Section 8.5, we explain why it would be important to implement these recommendations as one package, not separately or selectively. We believe implementing all recommendations as a package would maximise their potential benefits. Section 8.6 concludes with a brief summary.

8.2 Complementarity with other major policy initiatives in Pakistan

ACIAR project ADP/2010/091 has a high degree of complementarity with several other agricultural policy initiatives in Pakistan, Punjab and Sindh. Therefore, the aims and objectives of these projects and policy initiatives are likely to be supported by the recommendations made in this monograph. In particular, implementation of our recommendations would be beneficial for the following initiatives:

- Pakistan Vision 2025
- National Food Security Policy
- Socio-economic goals of the 12th Five Year Plan
- Punjab Growth Strategy 2018
- Strengthening Markets for Agriculture and Rural Transformation in Punjab (SMART Punjab) Project

- Punjab Livestock and Dairy Development Policy of Virtual Governance 2015
- Sindh Agriculture Policy
- Sindh Agriculture Growth Project.

8.2.1 Pakistan Vision 2025

The Pakistan Vision 2025 is a people-centric initiative aimed at reducing poverty and enhancing people's well-being by providing an enabling environment for all citizens to realise their full potential in contributing to the country's economic and social development. An important aspect of the Vision 2025 is to raise yield and productivity of small farmers by utilising multiple channels, including affordable credit for investment, and agriculture extension services for educating small farmers to adopt new technologies and marketing strategies. Economic development according to this Vision will promote inclusion and social justice by ending the discrimination faced by women and by increasing female participation in the workforce. 'Pakistan cannot be competitive without utilizing the work potential of half its population', the Vision proclaims.

Recognising the challenges that are likely to be faced—including the anticipated pushback from vested interests—the Government of Pakistan has made successful implementation of Vision 2025 a top priority for all levels of government. Accordingly, it has developed a performance monitoring and evaluation framework to ensure effective implementation of all government initiatives. This framework consists of: (a) sustained executive commitment and support; (b) private sector engagement; (c) mobilisation of diaspora; (d) unleashing the power of collaboration and communities; (e) improvement in productivity; (f) developing a network of vision champions; and (g) knowing-to-doing approach to research and development (Planning Commission 2014).

8.2.2 National Food Security Policy

The overall aim of the National Food Security Policy (NFSP) is to ensure a modern and efficient food production and distribution system that can best contribute towards food security and nutrition, in terms of availability, access, utilisation and stability. Its specific objectives include achieving an agricultural sector growth rate of 4% per annum, reducing poverty and hunger according to the Pakistan Government's commitment to the SDGs, bridging the yield gaps, and strengthening coordination between federal government and provincial governments for rural transformation.

For livestock and dairy, the NFSP seeks to improve local animal breeds for higher milk and meat productivity, create conditions for higher private sector investment in dairy farming and processing of milk, and improve the legal and regulatory framework for compliance with food quality and hygienic standards set by export markets.

8.2.3 Socioeconomic objectives of the 12th Five Year Plan

The socioeconomic objectives of the 12th Five Year Plan are:

- increasing agriculture growth rate to 4%
- increasing farmers' income or terms of trade
- making Pakistan a net food exporting country
- achieving food security
- increasing non-farm incomes for rural transformation.

8.2.4 Punjab Growth Strategy 2018

The Punjab Growth Strategy 2018 aligns Punjab's development priorities with those of the Federal Government's Vision 2025. The focus of the Punjab Growth Strategy 2018 is on promoting industrial development, cities and urban development, agriculture, livestock, skills, education, demography and population planning, and health in the Punjab. The Strategy reaffirms that agriculture is central to economic growth and development in the province and in the country. As agriculture is the most pro-poor sector, growth in the

agricultural sector will also benefit poor households, including small farmers. The specific aims of this Strategy are to increase agricultural productivity by:

- improving the quality of agriculture research
- improving connectivity of farms with markets
- promoting high-value agriculture
- increasing per animal productivity
- increasing the coverage and effectiveness of extension services
- transforming livestock businesses from subsistence to commercial ventures
- developing a Livestock Export Strategy
- bringing livestock farmers into the formal sector through collective services.

Underpinning the Punjab Growth Strategy 2018 is the Punjab Skills Strategy, which aims at strengthening the knowledge foundations of Punjab's livestock and dairy subsector. Developing best-practice curriculum, teaching, and learning resources through 'knowledge partnerships' with the private sector is the primary aim of this strategy. Growth clusters and value chains are to be developed and efficiency of public sector institutions is to be increased. The aim is to reduce the cost of accessing training, and to strengthen market linkages and employment opportunities.

8.2.5 SMART Punjab Project

In 2018, the Pakistan Government launched a major strategy for strengthening markets for the transformation of agriculture and diversification of the rural economy of Punjab under the banner of SMART Punjab. Supported by the World Bank, this project is being implemented by the Department of Planning and Development, Government of Punjab. The basic premise of SMART Punjab is that 'Punjab's agriculture sector needs a paradigm shift to unlock future opportunities for growth'. The focus of SMART Punjab is also on the development of the rural non-farm sector of the province, which is currently underdeveloped because of a weak enabling environment. The key objectives of SMART Punjab are to make Punjab's crop and livestock sector more productive, with more value-adding, and more resilient for the benefit of smallholder farmers and agroentrepreneurs (including women).

8.2.6 Punjab Livestock and Dairy Development Policy of Virtual Governance 2015

The Punjab Government's Livestock and Dairy Development Department (PLDDD) made a paradigm shift in 2015 in livestock policy by introducing a highly innovative ICT-based 9211 virtual governance system that shifted the policy focus from the traditional 'animal disease control' to a more proactive system of 'livestock asset management'. The aim of the virtual governance system was to overcome the long-standing disadvantages of distance-related isolation of dairy farmers in most of the 25,892 villages of the Punjab. These farmers had little or limited contact with urban markets and with the provincial or district administration; public extension workers rarely visited small farmers in the villages. The virtual governance system has made it possible to gain access to market information and extension services over the phone. All animals kept by these households are now enumerated in the provincial database, which also maintains records of their health and vaccination status. Many villages that had been isolated for years are now connected with the provincial Livestock and Dairy Development Department. Recently, this department has completed its '2018 door to door' livestock census, the first such census in any part of Pakistan. According to the PLDDD (2018), the new data will go a long way in ameliorating the conditions of millions of poor farmers.

8.2.7 Sindh Agriculture Policy

Sindh accounts for 18% of the country's land, 16% of its total cropped area and 23% of national agriculture output. However, the agriculture sector in Sindh has not performed

to its potential, and agricultural growth in 2016–17 was negative for the first time in the country's history. Sindh has relied in the past on expansive use of land, water, fertilisers and livestock numbers for growth in its agriculture. Acknowledging that this approach is unsustainable over the longer term, the new agriculture policy, which will be in force until 2030, focuses on achieving higher productivity as the principal source of growth. Specific approaches to make this possible include increasing credit flows into crop farming, livestock and fisheries, and reforming the legal and regulatory system governing land use, land transfer and land lease for rural enterprises, agriculture and livestock marketing and the agricultural price support system.

8.2.8 Sindh Agricultural Growth Project

Launched in 2014, the Sindh Agricultural Growth Project (2014–19) is implemented by the Sindh Department of Agriculture and the Sindh Department of Livestock and Fisheries. The main objectives of this project are to improve productivity and market access of small and medium producers in important commodity value chains by investing in knowledge and technology for farmers in the subsectors of crops and livestock; and strengthening public sector institutions to enhance the enabling environment for sustained sectoral growth. Project services also benefit women in agriculture, as a particular focus of this project. Thus, by focusing on smallholder farmers and women, the project is expected to contribute to making Sindh's economic development more inclusive.

8.3 Implementation strategy for enabling policies

Implementation of this monograph's recommendations will require active involvement of federal, provincial and district authorities, and within each province similar involvement of several ministries (e.g. agriculture, livestock and dairy development, cooperatives, extension departments, education, social welfare, provincial commissions for women's development and agricultural research institutes, including certain universities). In addition, certain federal ministries and institutions will also be involved, i.e. National Ministry of Food Security and Research, Planning Commission, State Bank of Pakistan, Department of Foreign Affairs and Trade, Pakistan Animal Quarantine Department and the Department of Plant Protection. Continuing liaison with the private sector, NGOs, and farmers' organisations would also be required for optimal outcomes.

8.3.1 Leadership

Effective implementation requires genuine leadership to coordinate efforts of all stakeholders and to harness cooperation from clients and competitors.

As the purpose of ACIAR project ADP/2010/091 is to improve the livelihoods of smallholders in specific subsectors of agriculture, the primary focus during the implementation phase must remain on smallholders—a section of the rural population that has not been prominent in Pakistan's agricultural discourse until now. The authorities in Punjab and Sindh would need to ensure that vested interests (e.g. the middlemen or elite farmers) are not able to frustrate or derail the implementation process.

Smallholders lack political influence and have little active participation in the political processes, unless they are organised in larger groups such as farmers' cooperatives or producer organisations. In Pakistan, rural support programs may also be able to empower small farmers. Alternatively, small farmers' participation in contract farming may also enable them to access those inputs and services that they were not able to access or afford individually. Thus, there are several pathways for encouraging smallholders to participate in the advocacy and implementation of the recommendations made in this monograph.

8.3.2 Budgetary resources

The nature of the policies recommended here is such that it will take three to five years of sustained implementation before all potential benefits are realised. Adequate funding and proper resourcing with well-qualified teams of experts throughout this period would be necessary for the success of the project.

There has been some criticism of Pakistan, for example by the FAO, that although authorities in Pakistan tend to exhibit a high degree of commitment to new reform policies during the tenure of externally funded projects, the same degree of commitment is not often maintained once those projects have been completed (FAO 2012). This means that although outcomes of a project may be excellent, these do not always mature into continuing programs. Largely, this may be the effect of continuing budgetary pressures.

8.3.3 Commitment, coordination and cooperation

No policy can achieve its goals until it is implemented properly and effectively. Effective implementation has been described as the science of 'making it happen' rather than 'letting it happen' (Greenhalgh et al. 2004). Strong leadership and effective coordination are paramount for 'making it happen'. The 'World Development Report 2017' (World Bank 2017a) emphasises the following three institutional drivers of policy effectiveness:

- commitment
- coordination
- cooperation.

'Commitment, coordination and cooperation are, therefore, essential institutional functions for making policies effective and thereby able to achieve development outcomes.' (World Bank 2017a, p. 6).

Commitment to a certain policy embodies strong conviction for its aims and potential benefits. Conviction, in turn, reflects a high degree of confidence in the ability of a policy to deliver the expected benefits. Firm and credible commitment to a certain policy automatically generates confidence among other stakeholders, leading to a virtuous snowballing of support. Such broad-based support of stakeholders would become durable only if commitment to the implementation process is maintained. Thus, durable commitment is fundamental to the building of coalitions of support for a policy.

As noted above, the policies recommended in this project will require involvement of many stakeholders—both from within and outside the public sector. Successful implementation of these policies will require coordination among partners (Figure 8.1). Effective coordination can deliver economic benefits by eliminating friction, delays and wastage. A good example of flawless, and highly beneficial, coordination is the famous Japanese innovation of 'just-in-time' manufacturing, which saved on both warehousing costs and delays by coordinating effectively across a wide range of suppliers of components and parts of machinery.

The third driver of effective implementation is cooperation across stakeholders who become supportive of the whole enterprise of policy reform. Absence of cooperation would raise issues of dissent, conflict, opposition, capture or corruption—all of which are sources of inefficiency, waste and exploitation. It is extremely important, therefore, to build and maintain a cooperative environment of supportive stakeholders. Rules and regulations are more likely to be observed in an atmosphere of cooperation.

Continuing fiscal commitment over at least three to five years would be required for the implementation of recommendations of this project. Creating fiscal space for the required funding is likely to require some degree of fiscal churning—reducing budgetary spending in some areas and increasing it in other high-priority areas. In a recent publication, Davies et al. (2016) have shown how the required fiscal space may be created with certain

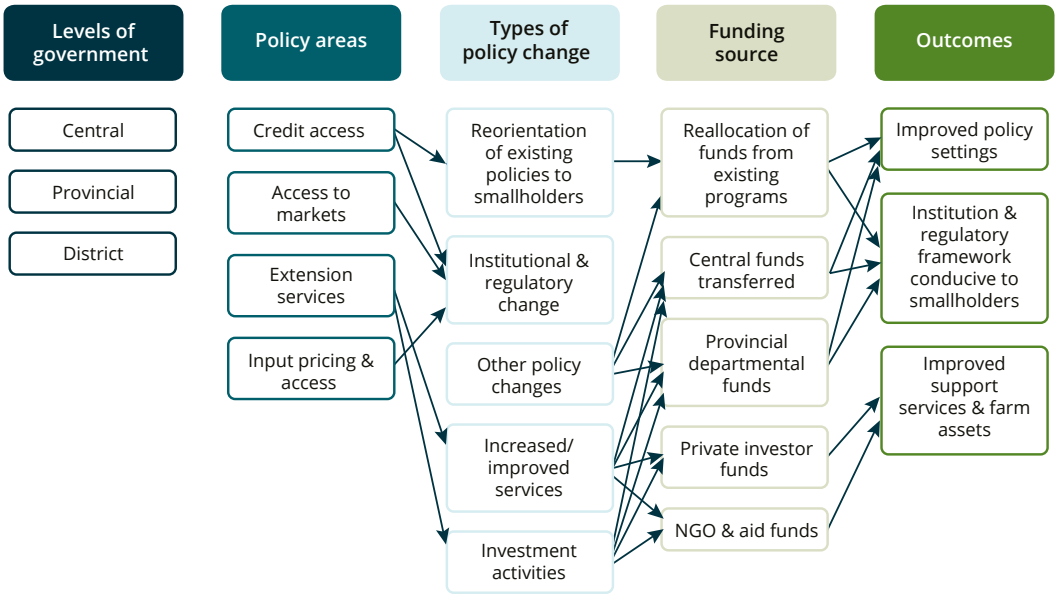

Figure 8.1 Illustrative policy implementation and coordination pathways.

modifications in budgetary expenditures and revenues.

8.3.4 Statistics for monitoring and evaluation

A final part of the implementation framework is the statistics. Without statistics, monitoring and evaluation of policies would degenerate to guess work, eventually resulting in loss of confidence in the policies. Statistics that are relevant, reliable and timely will help in monitoring how well the policies have been implemented and their impacts on target groups of population.

Currently, Pakistan's official statistics are a mixed bag—strong in some areas and not so good in others. On smallholder households, available statistics are often outdated or unhelpful for policy analysis.

Against this background, it would be essential to devote considerable attention and resources to improve the coverage, quality, reliability and timeliness of agricultural statistics, especially on smallholders and women.

8.4 Expected benefits

Economic impacts of policies focused on small farmers are likely to be substantial. As noted by Timmer (2005), there is no example of mass poverty reduction in modern history that has succeeded without substantial rises in employment and income on small farms. Research by FAO shows that in South Asia, income multiplier effects of improvements in the subsectors of livestock and dairy, and fruit and vegetables, are substantially higher than in the crop sector. For example, the income multiplier for livestock and diary was estimated at 4.7, and for fruit and vegetable sector the income multiplier was 4.3, whereas for the crop sector it was 3.6 (FAO 2012).

8.4.1 The impact of transforming smallholder agriculture in Pakistan

In Pakistan, as in many other developing countries, smallholder agriculture lies at the heart of the economic and social system. The effective and sustained implementation of a strategy for smallholder agriculture would have four economic effects, as shown in Figure 8.2:

- increased output and productivity (both per unit of land and per unit of labour), with a direct increase in household income from livestock and farming activities
- increased spending by smallholder householders on local goods and services, both to supply expanding business activities (e.g. fodder, seed, equipment) and from higher household incomes (e.g. food, entertainment, education, health and housing)
- increased off-farm surpluses, as an input to local, small-scale manufacturing (such as processing of milk, citrus and mangoes)
- higher levels of off-farm employment for members of smallholder households in both the services and industry sectors, resulting in further increases in household incomes.

Taken together, these processes can create a virtuous circle, in which a series of feedback loops between the various effects drive more rapid growth. For example, if a household generates higher income from higher farm and livestock output and from increased off-farm employment, this will provide it with resources to invest in better inputs, improved methods and new technologies. This additional investment will in turn generate increased income in the core business, further purchases by the business on local goods and services, and increased spending by the household. There are also demonstration effects—as some households move ahead, many others

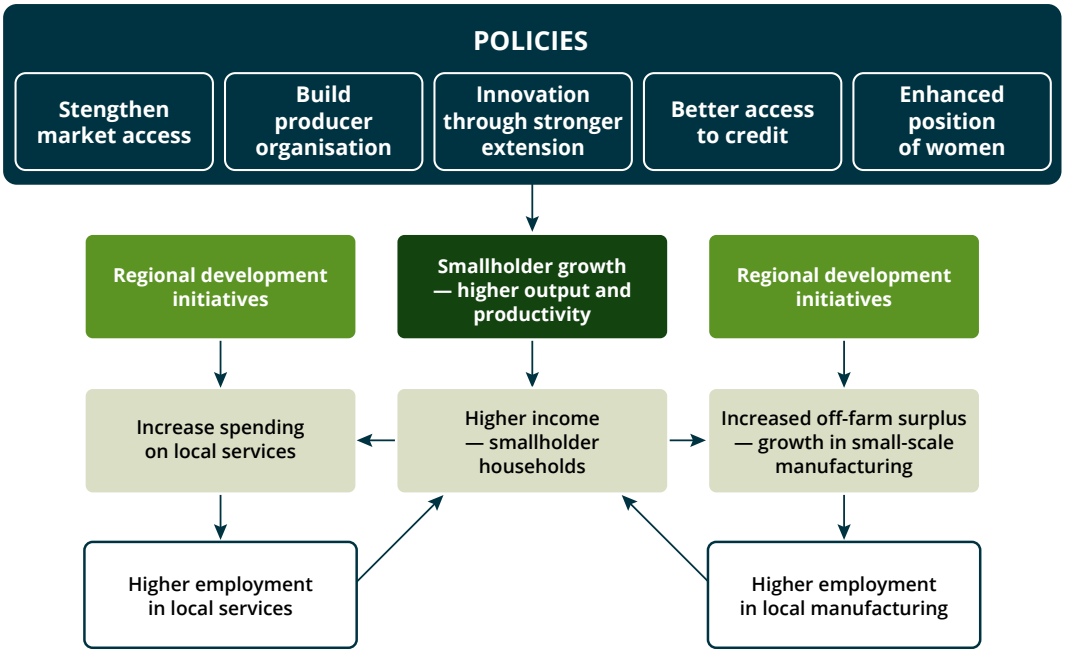

Figure 8.2 Illustrative economic impacts of growth in smallholder incomes.

will be induced to follow a similar path. The social processes put in train by unleashing the power of women to participate more fully in the economic affairs of the household—with more knowledge, respect and confidence—will further stimulate change.

These dynamic processes involving feedback loops have been much studied in economics and related disciplines and underlie the rapid economic growth achieved in some developing countries in recent decades. For the reasons outlined above and throughout this monograph, we believe that Pakistan now has the opportunity to reap the benefits of such processes originating in the smallholder sector.

Such dynamic processes are inherently difficult to quantify, as it is difficult to measure links between firms and sectors, and feedback loops are complex. This is especially in the case for Pakistan's smallholder agricultural sector, where even basic data are very limited. We offer two indications of the potential scale of the impact of change in the smallholder sector.

In economic terms, we can derive an estimate of impact of a given increase in smallholder value added by 2027–28, relative to what would otherwise be the case. We start from an estimate of the share of smallholders in agricultural value added in 2017–18 (60%), and assume that the multiplier relating the increase in agricultural value added to value added in the rest of the economy is 2. That is, that the full downstream effect of increased smallholder spending on industry and services is twice the original value added in agriculture.

On this basis a 25% increase in smallholder value added by 2027–28, relative to what would otherwise be the case, would increase the rate of growth of national GDP over the decade by 0.7 percentage points (e.g. from 5.0% p.a. to 5.7% p.a.). If the increase in shareholder value added induced by the new strategy was as high as 50%, the increase in the rate of growth of GDP would be 1.4 percentage points (e.g. from 5.0% to 6.4%). If the increase were only 15% over 10 years, the increment would be 0.4 percentage points. As there is no difference in the population between the two scenarios being compared here (the unchanged policy case and smallholder strategy case) these increases can also be interpreted as increased growth in per capita GDP. It is worth noting that, over the decade to 2017–18, real per capita GDP in Pakistan increased by 2.0% per annum.

We make no claim to precision in any of these estimates. The point is simply to illustrate that, given Pakistan's current situation, a transformation of smallholder agriculture would have a massive impact on Pakistan's overall economic situation. On the reasonably conservative assumption that the sustained implementation of the policy measures outlined above lead to a 25% increase in value added in smallholder agriculture, the result of these measures alone would be to increase the historical growth of GDP per capita by about one-third.

In social terms, one critical effect of the rejuvenation of smallholder agriculture will be a substantial reduction in poverty in Pakistan. There is an extensive literature showing the special effect of growth in agriculture on reducing poverty (see Ravallion and Chen 2007; Loayza and Raddatz 2010; de Janvry and Sadoulet 2010; Grewal et al. 2012), in part because in developing countries a high proportion of the poor are in rural areas. This will be especially evident for growth in smallholder as opposed to large-scale agriculture. The data in panel (b) of Figure 1.5 indicate that countries that achieved about 2% per annum growth in real agricultural value added per worker over 1990–2010 had a reduction in rural poverty in excess of 2% per annum. By comparison, rural poverty fell by only 0.6% per annum over this period. If Pakistan succeeds in revitalising smallholder agriculture, it can expect to see a rate of reduction in rural poverty in excess of 2% per annum.

The stipulated increase in earned income would occur as a combination of increased

productivity, higher output, higher prices, higher share of market prices, and lower dependence on exploitative middlemen (Figure 8.2). Additionally, direct connectivity with the markets through producer organisations would also restore positive incentives for small farmers to make improvements in the quality and presentation of their produce, further improving the chances of getting higher returns.

Because women play a significant role in smallholder on-farm activities, an increase in on-farm income should raise the position of women within rural households and rural society. Beneficial social impacts, such as better health outcomes and greater social harmony, are also expected to occur because of the eventual reduction in poverty and vulnerability of smallholders, which would lead to more equitable distribution of benefits of economic growth between rural and urban populations of Pakistan.

Additional community-level impacts (economic, social and/or environmental) would emerge over the longer term, as these depend on the political and policy environment in Pakistan, especially in Punjab and Sindh. Improvements in gender equality are very important for Pakistan and empowerment of women needs to be promoted as a priority. Recommendations made in this report should be helpful in this regard. Implementation of these recommendations would also contribute indirectly to better outcomes from several other ASLP-2 projects, because of the improvements in the policy settings in which outputs of these projects are utilised. Finally, by facilitating the achievement of ACIAR's objective of poverty reduction through development, this project would also help to raise the profile and visibility of ACIAR in the international donor community.

8.5 Why implement all recommendations as a package

We argue in this section that for maximum impact all recommendations should be implemented as a package. The reason is that relieving only some particular constraints in isolation would yield limited benefits, because the remaining constraints would still hold small farmers back. On the other hand, implementation of a combined package would generate a strong reinforcement effect. Some of our recommendations are aimed at improving smallholders' assets (with credit, for example), capability (with extension services) and productivity (with healthier dairy animals and improved fruit trees). Other recommendations are aimed at strengthening policy support, the regulatory framework (of markets, for example), institutional support (by tapping into potential benefits of smallholder producer organisation, NGOs and rural support programs, for example) and improving strategies (by diversification of livelihoods, buying insurance and joining contract farming, for example). As depicted in Figure 8.3, new policies and institutional support across a broad range lead to higher smallholder output and productivity, which in turn leads to higher smallholders' incomes. When spent on non-farm goods and services, higher incomes of smallholder households would benefit local service providers and provide support for local manufacturing. Simultaneously, risks and vulnerabilities faced by smallholder households would be reduced, as would rural poverty and inequality.

8.6 Summary and conclusions

Until recently, agricultural policies in Pakistan remained focused primarily on major crops and most of the benefits of policy support to agriculture accrued to large farmers and industrial enterprises associated with major crops. Diversification of Pakistan's agriculture remained limited.

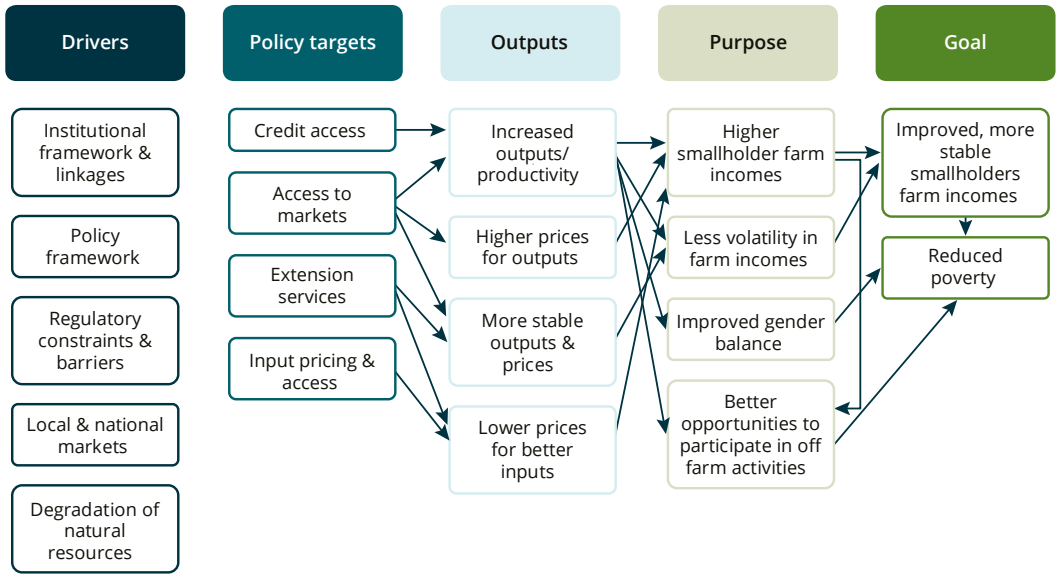

Figure 8.3 Illustrative policy impact pathways.

Now, the need for achieving inclusive growth in Pakistan has become a core national priority. The Pakistan Vision 2025 aims to promote inclusion by raising productivity of small farmers, increasing female participation in the workforce and by ending the discrimination faced by women. When declaring that 'Pakistan has to achieve inclusive economic growth', the latest Pakistan Economic Survey 2017–18 (Government of Pakistan 2018) reflected the same national priority.

The policy challenge now is to revitalise smallholder agriculture, in which small farmers currently have little effective voice in governance structures and policymaking. Many policy interventions are needed for improving small farmers' access to formal credit, extension services, agricultural markets and producer organisations. Enabling policies for these have been recommended in this monograph.

It is encouraging to note that there is a high degree of synergy between our recommendations and the focus of several other major agricultural projects and policy initiatives of federal and provincial governments in Pakistan. This complementarity suggests that policies recommended in this monograph would also help in achieving the goals of, for example, the Pakistan Vision 2025, the National Food Security Policy, the Punjab Growth Strategy 2018, the Punjab Livestock and Dairy Development Policy 2015 and the Sindh Agricultural Growth Project.

Given the crucial importance of policy implementation, desirable features of effective policy implementation have been discussed in this chapter. The first point to note is that implementation of our recommendations would require active involvement of federal and provincial governments and perhaps also of district authorities. For the success of such a large enterprise, the need for effective coordination and leadership would be paramount—for a number of years, because the tasks under question are not achievable in a single year.

Following the 'World Development Report 2017' (World Bank 2017a), in addition to strong leadership and adequate resourcing

of the implementation framework, we have discussed three key drivers of policy effectiveness: commitment, coordination and cooperation. Commitment to a certain policy embodies conviction to its aims and potential benefits. As the recommended policies require involvement of many stakeholders, successful implementation of these policies would also require coordination among all partners. The third driver of effective implementation is cooperation across all stakeholders who must be supportive of the whole enterprise of policy reform. Absence of cooperation would raise issues of disagreement, conflict, opposition, capture and corruption—all of which are sources of inefficiency, exploitation and wastage of resources. It is extremely important, therefore, to build and maintain a cooperative environment of supportive stakeholders. If the above requirements of implementation were met, the expected benefits of the recommended policies would be high.

In economic terms, this means that the full downstream effect of increased smallholder spending on industry and services is twice the original value added in agriculture. On this basis a 25% increase in smallholder value added by 2027–28 would increase the rate of growth of national GDP over the decade by 0.7 percentage points (e.g. from 5.0% p.a. to 5.7% p.a.). If the increase in shareholder value added induced by the new strategy was as high as 50%, the increase in the rate of growth of GDP would be 1.4 percentage points (e.g. from 5.0% to 6.4%). We make no claim to precision in any of these estimates—the point is simply to illustrate that, given Pakistan's current situation, a transformation of smallholder agriculture would have a massive impact on Pakistan's overall economic situation.

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Summary of policy recommendations

Chapter	Recommendation	Motivation
2. Improving export performance		
2.1	Develop food processing facilities in rural settings of Pakistan for supplying to both domestic and export markets.	Processing allows for ongoing storage and for domestic and export supply continuously throughout the year, and not just when fresh in season, as is currently the case for much of Pakistan current fruit exports.
2.2	Federal and provincial governments assist to facilitate linkages between Pakistan exporters and Indian sourcing agents that have existing supply networks into North America and Europe.	Indian exporters have existing supply arrangements into North America and Europe and bilateral agreements between India and Pakistan can provide Pakistan exporters increased access into these supply networks via Indian companies.
2.3	Strengthen regulations associated with product testing, grading, standards, and weights and measures, and introduce a national grading system which is credible, enforceable, widely published and accepted.	Modern supermarkets in the domestic market and export markets require quality products with correct grading, handling, packaging and presentation.
2.4	Develop policies to ensure that sanitary and phytosanitary (SPS) requirements of export markets are met, and that efficient SPS dispute resolution capabilities are in place.	SPS regulations force exporting countries to adopt very specific agricultural production, harvesting, handling, transport and trading practices as a prerequisite for export. These require whole supply chain adherence as well as government expertise when disputes arise between countries.
2.5	Federal government should continue negotiating bilateral trade agreements that increase access for Pakistan's agricultural exports. Both federal and provincial governments should be active in overseas export promotion activities, such as assisting potential exporters meet overseas customers.	Bilateral free trade agreements and export promotion activities are required to both expand Pakistan exports and diversify Pakistan exports from traditional markets.
2.6	A major strategic policy objective for the Pakistan agricultural sector should be to become a significant global supplier of key agricultural products into nearby regions in the coming years.	Potential export opportunities abound in nearby regional markets which if grasped will be a major income boost to rural Pakistan and a major source of foreign exchange for the country.
2.7	Evaluate the Philippines and Vietnam as potential mandarin export opportunities and attempt to duplicate the recent success in Indonesia.	There is a significant opportunity to expand and diversify exports into markets where Pakistan is already successfully exporting mandarins.
2.8	Identify and target a range of countries that import mangoes during the Pakistan supply season with the aim of linking Pakistan exporters with importers from the targeted countries.	There is a significant opportunity to expand and diversify Pakistan mango exports during the Pakistan supply season.
3. Improving access to formal credit		
3.1	Set annual targets for credit disbursement specifically for smallholder farmers (including women), separately in the farm and non-farm sectors of agriculture.	The motivation is to remove the current (implicit) incentive for financial institutions to meet credit disbursement targets with a small number of large borrowers rather than lending to a large number of smallholder farmers.

Chapter	Recommendation	Motivation
3.2	Increase the credit disbursement share of the livestock subsector to reflect its high economic and social importance in Pakistan. Make up-to-date assessments of the credit requirements of smallholder farmers in livestock, dairy and fruit at various stages of their farming cycles and ask banks to design appropriate credit instruments to match the assessed credit demand.	While 51% of agricultural credit is disbursed to the non-farm subsector, credit disbursement to smallholder farmers is only 18% of total credit, indicating that the lion's share of credit goes to large farmers. Furthermore, as credit needs of smallholder farmers can be seasonal, financial institutions must be fully aware of credit demand cycles and should tailor credit products accordingly.
3.3	Provide encouragement and incentives for financial institutions that do not currently provide credit to smallholder farmers to develop partnerships with microfinance institutions to extend their outreach into smallholder farmer communities.	Commercial banks in several developing countries have developed innovative models of 'relationship banking' with microfinance providers to increase their outreach into rapidly growing microfinance markets, but also keep costs down. Pakistan's commercial banks need to adopt similar innovations.
3.4	Introduce scaled-down rural bank branches to serve the rural population, especially smallholder farmers.	The recommended model would help to keep transaction costs of bank loans to smallholder farmers low. Experience in Indonesia suggests that scaled-down rural bank branches can reduce transaction costs and enable banks to provide formal credit to smallholders.
3.5	Set higher growth targets for value chain financing by focusing particularly on smallholder farmers, including women, in dairy, citrus and mangoes; and encourage greater involvement of smallholder producer organisations, contract farming, rural support programs, and NGOs in value chain financing.	In many countries, private sector stakeholders and NGOs have become involved in facilitating the formation of smallholder farmer cooperatives or producer companies that are able to secure better access to credit and more favourable terms for marketing. This needs to happen in Pakistan too.
3.6	Launch a new initiative of financial literacy targeting smallholders, including women, initially as a pilot project in selected areas of Punjab and Sindh, and then mainstreaming in line with the experience of the pilots.	Currently, smallholder farmers have little knowledge of financial instruments and have little trust of financial institutions. Better levels of financial literacy would improve both their understanding of financial products and their trust of financial institutions.
4. Strengthening extension services		
4.1	Redefine the mission of extension services to 'enable all farmers, including smallholders and women, to gainfully engage with modern food supply chains by adopting modern methods of production to increase their productivity and to diversify their livelihood sources.'	The motivation for this recommendation is to put sharp focus on smallholders and women as legitimate customers to be served by extension staff, and to broaden the remit of extension services to enabling farmers to gainfully engage with food supply chains. This would make extension services a driver of rural diversification in Pakistan.
4.2	Increase budgetary support for upgrading capabilities of extension personnel through in-service training in promoting rural diversification and small farmers' organisations, and recruiting more women extension agents.	This recommendation would involve all levels of government in transforming extension services by equipping extension personnel with training required for their broader responsibilities, and address the acute shortage of female extension agents in Pakistan.
4.3	Train extension personnel in promoting diversification of rural economy by enabling smallholders to earn additional income from non-farm employment and small rural businesses.	This recommendation would equip public extension personnel in diversifying smallholder farmers' incomes. Strengthening links of smallholder agriculture with the non-farm rural economy (small business opportunities) will go a long way in raising labour productivity in agriculture and increasing household incomes of smallholders at the same time.

Chapter	Recommendation	Motivation
4.4	Increase funding for recruiting additional women extension workers, as a priority.	The motivation of this recommendation is to plug a major hole in the current system of extension services. Women in Pakistan undertake heavy workloads in livestock and fruit farming. Because of the shortage of women extension staff, women farmers are unable to get the required help and guidance.
4.5	Train small farmers for Global GAP certifications so that they can gain SPS compliance and meet the SPS requirements of food supply chains for exporting dairy products, citrus and mangoes to more discriminating markets.	Meeting SPS requirements of export markets is a major challenge for Pakistan's farmers and requires training.
4.6	Improve coordination between all agencies and government departments that are involved in providing extension services and in training extension personnel.	Motivation for this recommendation is to improve the efficiency and effectiveness of Pakistan's agricultural extension services system by streamlining coordination within, and across, relevant government agencies, research institutes and agricultural universities.
4.7	Issue non-negotiable extension vouchers to smallholders and women farmers for purchase of specified extension services from private sector providers.	The motivation of this recommendation is to (a) connect smallholder farmers with private extension service providers and (b) help in making the entire extension services system more demand driven.
4.8	Use extension services to encourage smallholder farmers to form associations, networks, cooperatives or producer organisations for enhancing their bargaining power and tapping into the benefits of social capital.	The motivation here is to encourage smallholder farmer to form self-help groups, preferably based on rural support programs already operating in Pakistan.
4.9	Introduce an effective GIS-based monitoring and evaluation system at all levels of the agriculture extension system and generate reliable and timely statistics about progress being made.	The motivation here is to use information technologies in innovative ways to extend the outreach of extension services and to strengthen monitoring and evaluation frameworks that are based on reliable and timely statistics.
5. Improving access to markets		
5.1	Develop policies on market deregulation to eliminate regional market monopolies and encourage private sector investment and competition.	Wholesale markets play a central role in the movement of agricultural product from farm to consumer. The development of efficient access to markets plays a key role in ensuring farmers receive a fair price for produce. New investment is needed to improve physical infrastructure, efficiency, transparency and reduce wastage, and to increase access for smallholder farmers.
5.2	Remove price capping of milk and milk products to enable the dairy market to function more responsively to smallholder farmers.	The removal of price controls on milk will increase returns to smallholders in the short term and act as an incentive to increase investment and production. In the longer term Pakistan should be looking to replace imports and develop its dairy export potential.

Chapter	Recommendation	Motivation
5.3	Both federal and provincial governments should invest in improving road and other essential infrastructure within their jurisdictions and introduce policies to encourage further public and private sector investment in an expanded network of cold storage facilities.	An efficient and cost-effective road transport and cold storage infrastructure system are prerequisite conditions for an efficient agricultural marketing system.
5.4	Build on existing work relating to the supply of market information services via the mobile phone network in combination with the supply of extension services to smallholders and possible formation of collective arrangements.	Currently smallholder farmers receive little to no market or other information from government yet have a high penetration of mobile phones. Supply of timely information is required for more adaptive and responsive smallholder farms.
5.5	Provincial governments should evaluate the benefits of farmers' markets, and provide some initial seed funding until sufficient scale is achieved for them to be self-funding.	Accredited farmers' markets may offer smallholder farmers alternative marketing opportunities to achieve better prices for their produce.
6. Strengthening smallholder producer organisations		
6.1	Strengthen efforts to develop small farmer organisations for making Pakistan's economic development more inclusive, as envisaged in the Pakistan Vision 2025.	Development of smallholder farmer organisations should be an integral part of broader strategies for achieving inclusive economic development in Pakistan. The Pakistan Vision 2025 provides a natural platform for policy support to smallholders.
6.2	Strengthen regulatory frameworks for smallholder farmer organisations.	Governments of Punjab and Sindh must strengthen legal and regulatory frameworks so that smallholder farmer organisations can function without being captured and exploited by the elites or corrupt operators.
6.3	Develop rural enterprise policy and strengthen capacity building of members of farmer organisations to promote rural transformation.	The motivation of this recommendation is to enhance the skills and the confidence of members of smallholder cooperatives or producer organisations to promote rural transformation by establishing rural non-farm enterprises.
6.4	Channel government services through farmer organisations.	Making smallholder organisations and cooperatives focal points for providing superior germplasm, artificial insemination, feed and fodder supplies and credit to members will provide an incentive for smallholders to become members of producer companies or cooperatives.
6.5	Use extension agents to promote formation of farmer organisations.	The motivation is to provide advice and guidance to those smallholders who may have doubts about the value of smallholder organisations. Extension agents should be given training in this regard.
6.6	Build networks of milk marketing centres.	The motivation is to use milk collection centres to encourage formation of milk producer groups. Milk collection centres can serve as hubs for the supply of other inputs, such as fodder, seed, fertiliser, and small equipment.

Chapter	Recommendation	Motivation
7. Empowerment of women		
7.1	Strengthen compliance with laws for achieving greater gender equality in Pakistan by establishing a national taskforce to investigate the causes of low compliance with laws at present and to recommend ways to make better progress from now onwards.	At present, there are many laws in Pakistan to promote gender equality, but compliance with these laws remains low and uneven across the provinces. The motivation of this recommendation is to strengthen compliance by learning about the causes of low compliance.
7.2	Establish realistic targets for achieving wage parity between men and women for similar work and report annually on progress towards these targets. Collect and publish objective data on progress made by each jurisdiction. Encourage competition by rewarding the leading achievers every year.	Wage inequality exists in most countries, including the developed countries. The motivation for this recommendation is to get stronger official commitment to clear pathways for achieving greater wage equality in the next 5–10 years. The monitoring and reporting should ensure participation of all provinces in moving towards their respective targets and competing with one another.
7.3	Increase provincial funding for women's college and university education, and also encourage private sector and NGOs to invest more in women's education and training, especially in rural areas.	College education is essential for decent employment. Currently only 4% of rural women in Pakistan have college and university degrees. The motivation for this recommendation is to raise the level of financial commitment of government and non-government providers to improve women's access to post-secondary education, particularly in rural areas.
7.4	Establish a national taskforce to make recommendations on how modern technologies can help rural women access credit, market information and technical training for setting up their own small rural businesses.	Technologies have the potential to liberate women, especially rural women, from the various gender-based customs and restrictions on their movement outside their home. Technologies can also open access to distance education and training, overcoming the hurdles of geographic isolation.
7.5	Encourage banks and microfinance institutions to provide loans to rural women who have gained formal training in fruit production, livestock rearing and food processing, and other ways of value addition.	The motivation for this recommendation is to improve women's access to affordable credit so that they can improve productivity of their assets and start agribusinesses for increasing household incomes.
7.6	Strengthen coordination between federal and provincial agencies responsible for women's empowerment and encourage them to speed up the implementation of recommended policies.	Progress towards women's empowerment is highly variable across Pakistan's provinces. While this is often explained in terms of social and cultural differences, there is scope for improving performance by capacity building and greater transparency in reporting.
8. Implementation strategy		
8.1	Implement recommendations on all policy areas as a single package.	The motivation is to maximise benefits flowing from the recommendations.
8.2	Establish a core leadership group of key stakeholders in charge of implementation.	The motivation is to ensure that key stakeholders are represented on the leadership team.
8.3	Ensure adequate funding and resourcing of the implementation process.	The motivation is to ensure continuity of the recommended policies over time.
8.4	Ensure effective coordination among stakeholders.	The motivation to ensure inclusive and smooth functioning of all stakeholders.
8.5	Generate reliable and timely statistics on key indicators of policies.	The motivation is to ensure objective monitoring and evaluation of the policy implementation process.


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