Swiss Re

Agro insurance hotspot: **Pakistan**

With two out of every five people dependent on the sector, agriculture is vital to Pakistan's economy. That's why it's important to further strengthen irrigation networks, upgrade the country's flood resistance and increase the availability of crop and livestock insurance. Such measures can make the agriculture sector more resilient to the impact of floods, earthquakes, droughts and cyclones.

Agriculture contributes around 25.1% of Pakistan's GDP. Livestock is the key sub-sector: more than 8 million households are engaged in livestock rearing and it accounts for 56.3% of the total value of agriculture production.

Nevertheless, agricultural production is vulnerable to the effects of natural catastrophes. Flooding in particular has caused havoc, damaging crops as well as livestock and crippling the agriculture value chain.

Increasing the availability of crop and livestock insurance would better protect Pakistan's agriculture production chain. Of the 75 million plus dairy animals, for example, a large number are still uninsured. The government recently extended its subsidy support to cover more farmers with livestock financing from banks. With increased insurance, farmers are able to recover more quickly from disaster shocks, contributing to the resilience of Pakistan's agriculture sector.

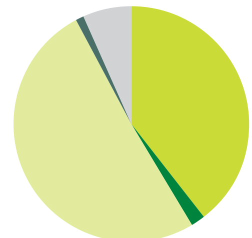
Pakistan: **Geographical profile**

Strategically located along the corridor between South Asia, the Middle East and Central Asia, Pakistan shares its borders with politically significant countries such as China, India, Afghanistan and Iran. It also shares a maritime boundary with Oman. In the south, Pakistan has a coastline of 1046 km along the Gulf of Oman and the Arabian Sea. The country's terrain ranges from deserts (with some seasonal salt marsh) to coastal belts in the South, river plains in the east, mountains in the north and northwest, and plateau in the west. It is also home to five of the world's highest mountain peaks.

Rangelands make up as much as 27% of Pakistan's land area; however, productivity has been decreasing because of indiscriminate grazing. Around 20% of land is under cultivation and is concentrated in the Sindh and Punjab provinces, which receive irrigation from an extensive network of canals. Forests cover around 5% of land.

Given such diverse geography, climatic conditions vary significantly. The northwest is usually temperate while arctic conditions prevail in the north, particularly in the mountain ranges of the Himalayas, Karakoram and Hindu Kush. There are four main seasons: winter (December - February), spring (March - May), summer (June – August), and autumn (September – November). The key rainy season for Punjab and Sindh provinces overlaps with the southwest monsoon months of July to September. Balochistan in the southwest receives most of its rainfall between October and March, coinciding with the western depression rainfall from Iran and Afghanistan.

Land use in Pakistan (2014)



Arable land	40%
Forest	2%
Other land	51%
Permanent crops	1%
Permanent meadows and pastures	6%

Sources:
- CIA World Factbook, www.cia.gov/library/publications/the-world-factbook/index.html
- FAO Stat, http://faostat3.fao.org/faostat-gateway/go/to/home/E
- FAO, http://www.fao.org
- http://apps.unep.org/publications/pmtdocuments/-Land_Use_Atlas_of_Pakistan-2009Pakistan_LandUseAtlas_2009.pdf

Pakistan: **Demographic profile**

Pakistan is the sixth most populous country in the world. Its population density varies from region to region depending on climatic conditions. With 55% of the population under the age of 24, it is a country of young citizens. Its population has grown at a higher rate in urban than in rural areas. Agriculture continues to be a major source of employment, with two out of five dependent on the sector.

Despite an abundance of natural resources, Pakistan is considered a lower middle income country with a low human development category (HDI) of 0.538 (positioning the country at 147 out of 188 countries and territories). One fifth of the population lives below the poverty line. What's more, a significant portion of the population lives just above the poverty line and is at high risk from falling back into poverty without a strong safety net mechanism against external shocks like natural disasters.

202 m

Population size
as per July 2016 estimation

1.45%

Population growth rate

43.7%

Labour forces in agriculture

Sources:
- CIA World Factbook, https://www.cia.gov/library/publications/the-world-factbook/index.html
- World Bank, http://data.worldbank.org/
- USDA Foreign agricultural service
- UNDP, http://hdr.undp.org/
- http://data.worldbank.org/country/pakistan
- http://www.pk.undp.org/content/pakistan/en/home/countryinfo.html
- http://www.finance.gov.pk/survey/chapters_16/Overview_of_the_Economy.pdf

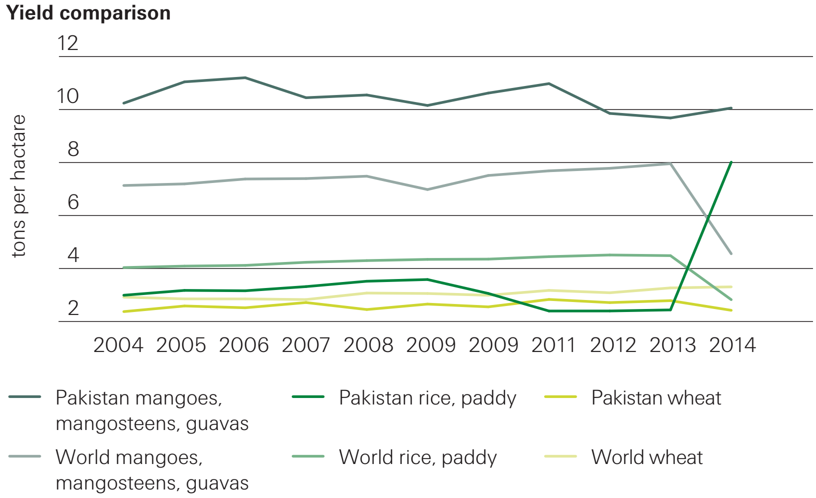
Pakistan: **Agricultural production profile**

Agriculture is vital for the economy of the country and contributes around 25.1% of GDP. Livestock is the key sub-sector in Pakistan, contributing 56.3% of the total value of agriculture production and engaging more than 8 million households. The country is the third largest milk producer in the world and besides cattle it has a significant goat, sheep and camel population. In recent years, several corporates have entered the dairy business and improvements have been made in risk management measures to protect businesses. Rangelands are extensively used for animal grazing in the rural setups, while the vast coastline has helped to develop fisheries. Though small in size, aquaculture is a growing business, especially in the Punjab province. In the 2014-15 fiscal year, livestock (at 4.1%) and fisheries (at 5.8%) subsectors grew much faster than the crop subsector (at 2.9%).

Pakistan has two prominent cropping seasons – Kharif (which overlaps summer) and Rabi (overlapping late autumn and winter). Merely around 24% of the cultivated land is rain fed, thanks to an extensive network of canals under the Indus basin, forming the largest contiguous irrigation system in the world. This has helped reduce farmers' dependency on rainfall, although low productivity still remains a big challenge. Wheat is the major Rabi crop, and is often preceded by one of the six Kharif crops, namely cotton, maize, rice, sugarcane, coarse grains and groundnut. Among these, cotton remains the most popular Kharif crop and covers around 49% of the cultivated land. Pakistan is also a leading producer of high value products such as mango, apricot, onion, dates and citrus fruits.

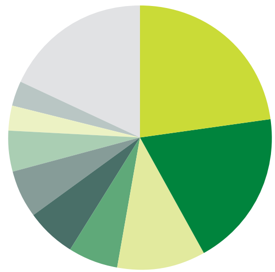
Subsistence crops	Wheat, rice, maize, chickpea, millet
Cash/export crops	Cotton, mustard, sugar cane, mango, apricot, onion, dates, mandarin, orange
Livestock	Cattle, buffalo, sheep, goat, camel and other animals are reared for milk, meat, wool, skin and hides. Poultry is also an important source of eggs and meat.
Forestry	Around 5% of land is covered by forests, which serve as a major source of timber, paper, fuel and food. Few plantations of rosewood, gum arabic tree, mulberry, eucalyptus and poplar exist for commercial purpose.
Aquaculture	Relatively small but fast growing sector, with major focus on carp.

Yield comparison



Sources:
- FAO Stat, http://faostat3.fao.org/faostat-gateway/go/to/home/E
- FAO, www.fao.org
- FAO - Country Pasture/Forage Resource Profiles
- Trading Economics, http://tradingeconomics.com/
- CIA World Factbook, https://www.cia.gov/library/publications/the-world-factbook/index.html
- Ministry of National Food Security & Research
- Ministry of Finance, Government of Pakistan, http://www.finance.gov.pk/
- http://apps.unep.org/publications/pmtdocuments/-Land_Use_Atlas_of_Pakistan-2009Pakistan_LandUseAtlas_2009.pdf.pdf
- http://www.milkproduction.com/Global/IFCN%20Dairy%20Report%202012-press%20release.pdf

Agricultural production value in 2013 (USD m)

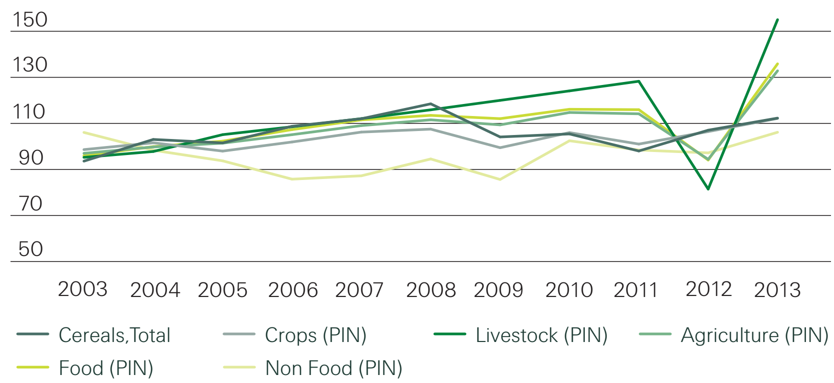


Wheat	28%
Milk, whole fresh buffalo	13%
Rice, paddy	9%
Cotton lint	7%
Seed cotton	6%
Meat, goat	5%
Maize	4%
Sugar cane	4%
Mangoes, mangosteens, guavas	3%
Others	21%

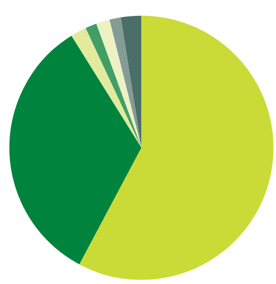
Total: 28 680 USD m

Source: FAO STAT

Gross production index number (2004–2006 = 100) – Pakistan



Livestock production in tons (2014)

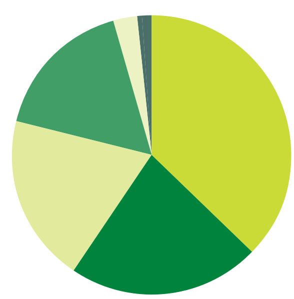


Milk, buffalo	31 252 000
Milk, cow	18 027 000
Meat, chicken	987 000
Meat, cattle	850 000
Meat, buffalo	844 000
Milk, whole fresh goat	822 000
Others	1 219 502

Total production: 54 001 502 tons

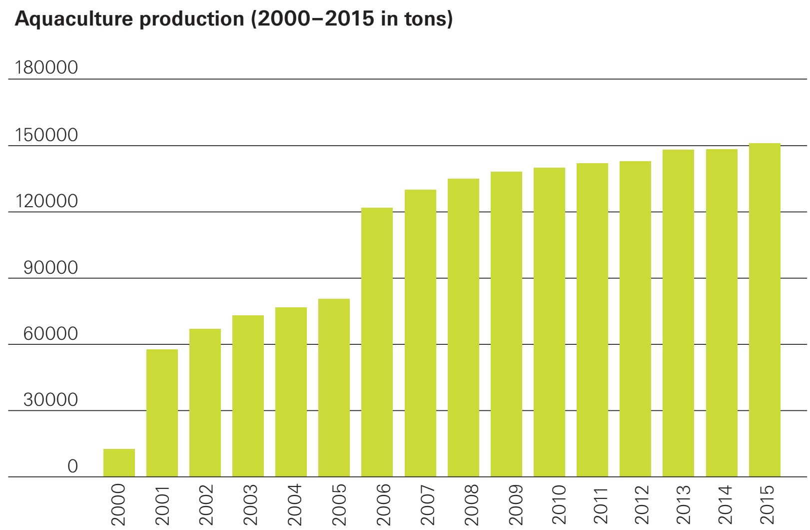
Source: FAO STAT

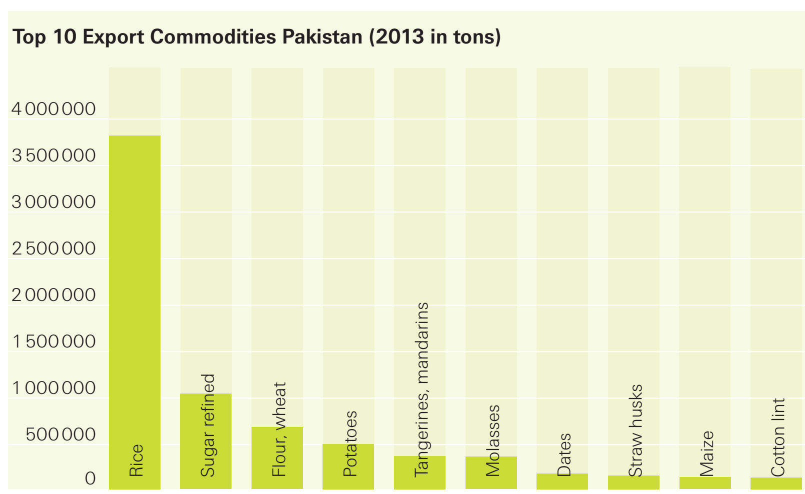
Livestock Population (2014–2015)

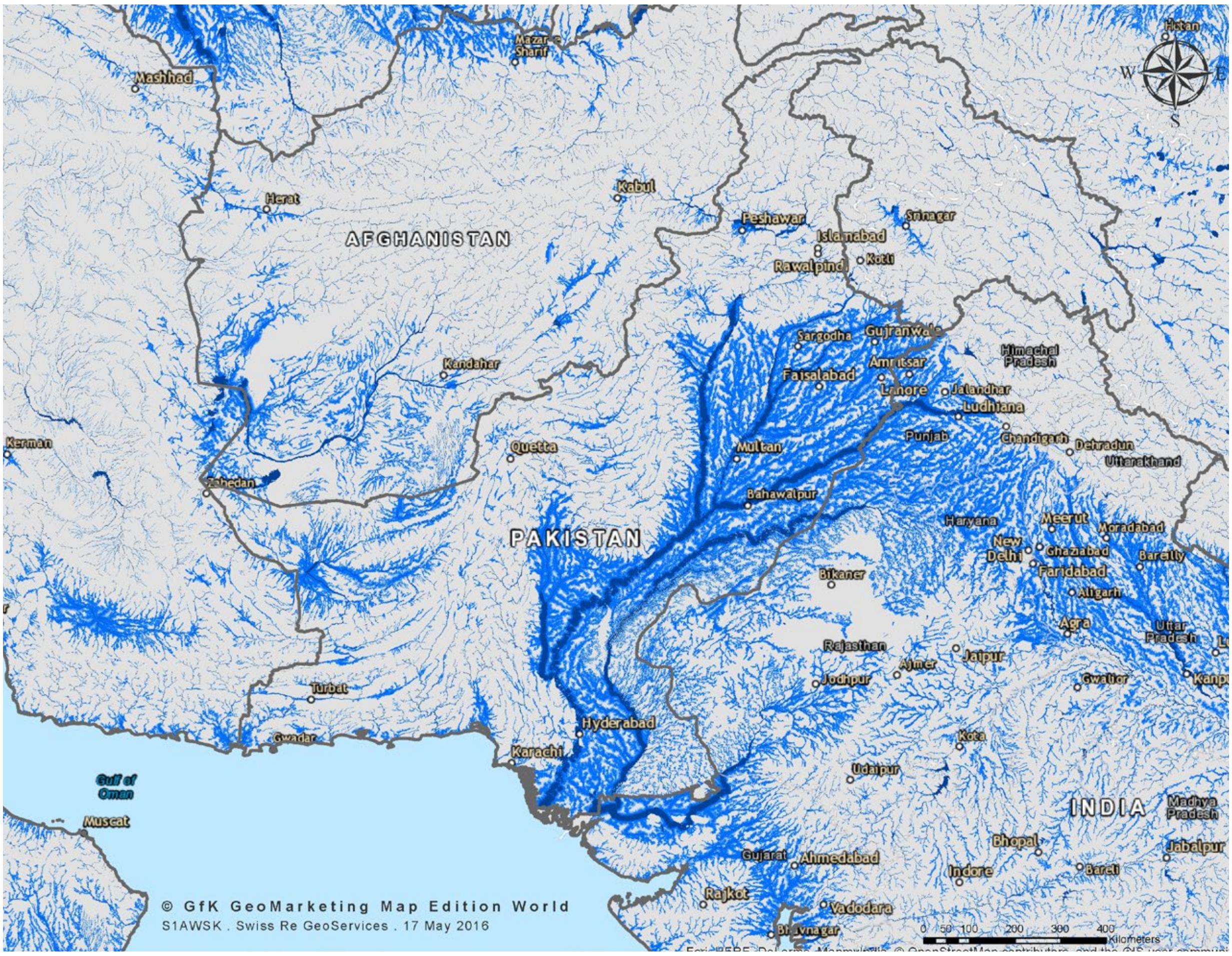


Goats	64 858 000
Cattle	38 299 000
Buffaloes	33 680 000
Sheep	28 755 000
Asses	4 853 000
Camels	1 008 000
others	1 753 400

Source: Ministry of National Food Security & Research


Aquaculture production (2000–2015 in tons)
180000
150000
120000
90000
60000
30000
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015


Top 10 Export Commodities Pakistan (2013 in tons)
4 000 000
3 500 000
3 000 000
2 500 000
2 000 000
1 500 000
1 000 000
500 000
0
Rice
Sugar refined
Flour, wheat
Potatoes
Tangerines, mandarins
Molasses
Dates
Straw husks
Maize
Cotton lint



Flood
Return period

- 50 years
- 100 years
- 250 years
- 500 years

Sources: ESRI and GfK

Pakistan: **Natural perils profile**

Pakistan's long coastline, its position in relation to the Eurasian, Arabian and Indian tectonic plates, and its exposure to snow-fed rivers from the Himalayas and consistently low rainfall in some regions all make the country vulnerable to floods, earthquakes, droughts and cyclones. In the past five years in particular, consecutive flooding has caused havoc, damaging standing crops as well as livestock and crippling the agriculture value chain. Other events include a continued dry period between 1998 and 2002, which damaged the agriculture sector and caused migration to cities, and a cyclone in 1999, which affected the livestock and fisheries sector. Earthquake in 2005 caused damage to the irrigation channels, grain and fodder storage systems and animal sheds. Moreover, in 2010, Pakistan was affected by a wide-scale flood, the details of which are mentioned in the box below.

Such catastrophes have impacted on the economic growth of this developing nation and have led to increased dependency on donor agencies for post-disaster assistance. The government recognises the vulnerability of the population to such incidents and the need to further strengthen the irrigation network and flood and earthquake resistant construction in the country. It is a positive sign that the government is taking concrete steps to increase the penetration of crop and livestock insurance in the country.

2010 and 2011 floods

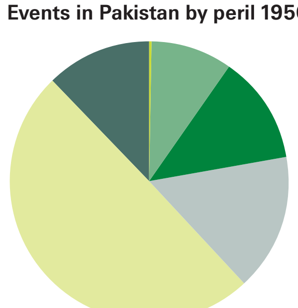
The flood in July 2010 is often regarded as the worst in the past 80 years. At its peak, it affected one fifth of Pakistan and caused total economic losses of around USD 10 billion. Damage to agriculture was extensive, at around USD 5.0 billion. Around 2.1 million hectares of crops were damaged and 1.5 million livestock perished. Khyber Pakhtunkhwa, Punjab, Balochistan and Sindh provinces were all affected.

Excessive rainfall around Sindh in the following year caused yet another flood and damaged cash crops in the surrounding regions. The overall loss to agriculture was estimated to be USD 1.8 billion.

Top 10 disasters in Pakistan

Type	Year	Total damage (in USD '000)
Flood	2010	9500000
Earthquake	2005	5200000
Flood	2012	2500000
Flood	2011	2500000
Flood	2014	2000000
Storm	2007	1620000
Flood	2013	1500000
Flood	1992	1000000
Flood	1973	661500
Flood	1976	505000

Events in Pakistan by peril 1950–2016



Source: Emdat

Sources:
- AXCO, www.axcoinfo.com
- http://www.emdat.be/country_profile/index.html
- Damage and Need Assessment Report of World Bank and Asian Development Bank, http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2014/02/07/000461832_20140207150008/Rendered/PDF/846060WP0P09910Box0382140B00PUBLIC0.pdf
- National Disaster Management Authority, Pakistan, http://www.ndma.gov.pk/Documents/Annual%20Report/NDMA%20Annual%20Report%202011.pdf
- http://www.recoveryplatform.org/assets/publication/PDNA/CountryPDNAs/Pakistan_Earthquake_2005_Preliminary%20Damage%20and%20Needs%20Assessment.pdf

Pakistan: **Insurance market profile**

By taking advantage of powerful distribution channels and tax benefits, the life and health insurance industry of Pakistan has shown tremendous growth in recent years – with a far bigger market size than the non-life insurance industry. Ownership rules are liberalised: one hundred percent foreign investments and control is possible. New Takaful regulations were launched in 2012, allowing insurers to enter into Sharia-compliant insurance business. The Securities and Exchange Commission of Pakistan (SECP) acts as the regulator for the sector. One of the major challenges facing the local insurance industry is adapting to the effects of climate change and natural disasters.

There are around 41 non-life insurers in the Pakistan market, including three Takaful insurers and one state-owned insurance company. There is also one state-owned reinsurer. Banks (to protect their loans) and other corporates remain the biggest customers in the market.

Agriculture insurance*

8

Number of active companies (approximately)

7.5 m

Estimated crop insurance premium (USD)

3 m

Estimated livestock insurance premium (USD)

* Swiss Re estimates

Total insurance market size 2014 (premium in USD millions)	1777.4
Non-life insurance market size 2014 (premium in USD millions)	543.95
Non-life insurance premium growth (%) 2014	12.93
Insurance penetration 2014 (premiums written as % of GDP and expenditure on a per capita basis)	0.71

Source: http://axco.co.uk

Livestock insurance

History
Livestock insurance was launched in Pakistan in 1983. In 2014, the government extended its subsidy support to ensure wider coverage of smaller farmers with livestock financing from banks. This initiative, widely regarded as 'Prime Minister Livestock Loan Insurance Scheme', is expected to boost penetration in the near future.

Coverage
Typical livestock insurance products offered in the market cover death as well as permanent disability, theft and other risks.

Distribution
While most of the 'scheme' products are tagged along with bank loans, there is a clear shift from small herd based rearing to large professionally run commercial farms. Insurers have also started using other non-banking agency channels to tap this potential (these products, however, are out of scope for the scheme and do not qualify for government subsidies).

Claims adjustment
To tackle challenges like moral hazard/fraud, adverse selection and high administration costs, insurers have started relying on modern technologies like digital photographic recording and ear tagging. Many insurers have developed a close network of veterinarians and surveyors who assist them in processing claims.

Crop insurance

History
In contrast to livestock insurance, crop insurance is quite new (a nationwide scheme was first introduced in 2008) and works on the basis of public and private entities working together. The government offers full premium subsidies to small farmers insured under the scheme. Currently, farmers with landholding of under 25 acres are eligible for such subsidies.

Coverage
Multiple perils are covered under the scheme. Claims are paid based on individual farm surveys carried out in areas where natural disasters have been declared by the government. Existing products under the scheme cover wheat, rice, maize, cotton and sugar cane and premium rates are capped. Most coverage is for widespread disasters, while coverage for small-scale risks is extremely limited. Horticulture and other commercial crops remain largely unprotected from weather events, pests and diseases, and very few insurers offer coverage for such risks.

Distribution
Most crop insurance in Pakistan is sold through compulsory bundling with bank loans on growing specific crops. As such, non-banking agency channels are still untapped.

Challenges
The inherent 'indemnity' style of the schemes' products can lead to administrative difficulties, delays in settlement and general dissatisfaction with the adequacy of payouts. Index insurance products can be tried on a pilot basis to test their effectiveness to tackle these challenges.

Credit disbursement to farm and non-farm sectors

Sector (Rs. in billion)	2014–2015 (July–March) Disbursement	Share in total (%)
A Farm credit	**170.0**	**52.1**
1 Subsistence holding	94.1	28.9
2 Economic holding	41.0	12.6
3 Above economic holding	34.9	10.7
B Non-farm credit	**156.0**	**47.9**
1 Small farms	53.9	16.5
2 Large farms	102.0	31.3
Total (A+B)	**326.0**	**100.0**

Sources:
– State Bank of Pakistan
– AXCO, http://www.axcoinfo.com/
– Securities and Exchange Commission of Pakistan, http://www.secp.gov.pk/
– Federal Budget Publication, http://www.finance.gov.pk/fb_2015_16.html
– State Bank of Pakistan
– Keynote address by Governor of the State Bank of Pakistan, at the International Conference on Innovative Agriculture Financing, Islamabad, 28 April 2015, http://www.bis.org/review/r150610f.htm
– http://sbp.org.pk/press/2014/Credit-04-Feb-2014.pdf
– https://www.dawn.com/news/1174120

Potential
Considering the overall agri-sector contribution GDP to be about USD 56.45 bn, the current coverage of crop and particularly livestock insurance surely remains inadequate. The current crop insurance products only pay out in calamity years, and are limited to the five major crops, leaving the commercial horticultural and other plantation farmers vulnerable to natural disaster. Further the existing schemes depend heavily on banking channels for distribution whereas formal farm credit has reached less than one third of the farming families. Studies indicate that about half of the agri-financing requirements are still unserved by banks due to operational challenges. Of the 75 million plus dairy animals, a large number are still uninsured. What's more, current agri-credit disbursement to the livestock subsector is not proportional to its contribution to GDP. Uptake for products covering other animals like goat, sheep and camel also remains very small due to distribution challenges and low demand emanating from lack of awareness of value of such products. The existing coverage remains confined to mortality and disability, whereas with the growing commercialization, there is now a stronger case to provide value chain oriented coverages like business interruption. Products around new concepts like animal health insurance and live weight insurance for animals reared for meat are yet to be tested on a wider scale. Other risks like poultry and aquaculture also seem to be largely uninsured. Diseases pose the greatest risks in both these sectors and can potentially wipe out a farmer's whole working capital. Developing insurance products is therefore quite important for such risks. It is a good sign that government agencies such as the State Bank of Pakistan, in its guidelines for financing poultry and aquaculture farms, advocate the importance of insurance covers. In 2015, Government of Pakistan announced a huge relief package of about USD 3.24 bn, although only a small portion of it was dedicated towards agriculture insurance. Nonetheless, in the past few years, the government has taken firm steps to broaden the definition of eligible farms under the livestock and crop insurance schemes. An important decision was taken in early 2014 to enhance the existing unit loan sizes for major crops and this is expected to boost the crop insurance penetration, which remains largely dependent on the loan-linkage. This should enhance the agriculture insurance penetration in the country. The local governments can also help in reducing the existing protection gap, by purchasing macro-level covers against natural disasters like floods and creating a robust mechanism for fair disbursal of claims under such policies to the affected population.

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