



PUNJAB AGRICULTURE POLICY 2018



TABLE OF CONTENTS

CONTEXT FOR AGRICULTURE POLICY	8
Agriculture Sector State and Profile	9
Economic Analysis Feeding Policy Stipulations	13
POLICY FRAMEWORK	17
Policy Objectives	17
Policy Goals	17
The Role of Government	18
Target Beneficiaries	19
EXPANSION IN AGRICULTURE PRODUCE MARKETS	21
Reforms in Agriculture Marketing Laws and Regulations	21
Storage Expansion to Ensure Competitive Prices for Farmers	23
Build Value-Chains and Incentivize SMEs in Agro-Processing	25
Market Intelligence and Information Dissemination	27
IMPROVE ACCESS AND QUALITY OF AGRICULTURE INPUTS	28
Optimize Subsidy Programs	29
Direct-To-Farmer Transfers of Subsidies	31
Easy Credit for Farmers	32
Strengthen Agriculture Innovation and Research	34
Reforms in Seed Sector Law and Regulations	36
Improve Farmers' Access to Information and Advisory Services	37
Empowering Rural Women for Inclusive Growth	38
Inducing Mechanization in Agriculture for Growth and Employment	39
ENCOURAGE CHANGE IN CROP-MIX	43
Policy Shift in Development Approach	44
Policy Implementation Strategy	45
CLIMATE SMART AND REGENERATIVE AGRICULTURE	47
Safety Net for Small Farmers Through Area Yield Index Insurance	49
STRENGTHENING AND CAPACITY BUILDING OF INSTITUTIONS	50
Capacity Building of Human Resource	50
Improvement in Institutional System	51
Monitoring and Evaluation	52

LIST OF TABLES, FIGURES AND BOXES

Table 1: Overall Yield Gaps	11
Table 2: Poverty Variations by Size of Farm 2014	14
Table 3: Poverty Variations by Size of Farm across Agro-climatic Zones 2014	15
Table 4: Sources of Income Variations by Size of Farm Size 2014	16
Figure 1: Regional Distribution of Crops in Punjab	12
Figure 2: Total Factor Productivity Growth Since the 1980's	13
Figure 3: Increasing Land Fragmentation	14
Figure 4: Economic Impact of Agriculture Research and Extension	28

ACRONYMS AND ABBREVIATIONS

AARI	Ayub Agriculture Research Institute	NADRA	National Database and Registration Authority
ADU	Agriculture Delivery Unit	NAMA	Nationally Appropriate Mitigation Actions
AIDE	Agriculture Innovation Development Enterprise	NGO	Non-Governmental Organization
AYII	Area Yield Index Insurance	OFWM	On Farm Water Management
CAPP	Connected Agriculture Platform Punjab	PAD	Punjab Agriculture Department
CBS	Capacity Building Strategy	PACE	Pakistan Agriculture Capacity Enhancement
CLI	Crop Loan Insurance	PAMRA	Punjab Agricultural Marketing Regulatory Authority
CMC	Collateral Management Company	PARB	Punjab Agricultural Research Board
CRS	Crop Reporting Services	PARC	Pakistan Agricultural Research Council
CSA	Climate Smart Agriculture	PBHDB	Punjab Horticulture Development Board
DAP	Diammonium Phosphate	PEEP	Punjab Enabling Environment Project
FAO	Food and Agriculture Organization	PKR	Pakistani Rupee
FSC&RD	Federal Seed Certification and Registration Department	PLRA	Punjab Land Revenue Authority
FSU	Financial Services Unit	PMEX	Pakistan Mercantile Exchange Limited
FY	Financial Year	PPP	Public Private Partnership
GDP	Gross Domestic Product	PSC	Punjab Seed Corporation
GHG	Green House Gas	R&D	Research and Development
GoPb	Government of Punjab	SCF	Small Commercial Farmers
GoP	Government of Pakistan	SME	Small Medium Enterprise
GST	General Sales Tax	TFP	Total Factor Productivity
HEIS	High Efficiency Irrigation System	SPS	Sanitary Phyto-Sanitary
HIES	Household Integrated Economic Survey	US	United States
ICT	Information and Communications Technology	USAID	United States Agency for International Development
ICSA	Institute of Climate Smart Agriculture	WFP	World Food Program
IFPRI	International Food Policy Research Institute		
IMR	Irrigation Maintenance and Repair		
M&E	Monitoring and Evaluation		
MICS	Multiple Indicator Cluster Survey		
MRV	Measurement, Reporting and Verification		
NA	Not Applicable		



**MESSAGE BY THE
MINISTER
AGRICULTURE,
GOVERNMENT
OF PUNJAB**

Pakistan's agriculture sector plays a central role in the economy absorbing 42.3 percent of the labour force. The present government is focused on developing this sector and in this connection is fully motivated to initiate numerous measures towards farmer-oriented finance opportunities and higher productivity through market reforms and regulation. Consistent efforts will continue in crop diversification, efficient use of water and promotion of high value crops including; biotechnology, reduction of mark-up rates, agriculture credit enhancement, subsidized fertilizer prices and cheap electricity for agri tube wells. The ultimate aim is to maintain continuous growth of the Agriculture sector through high performance.

Specific functions and responsibilities have been entrusted to the field of agriculture to achieve objectives of sustainable development. The Government of Punjab is committed to the formulation of the relevant mechanisms and monitoring and evaluation of the same across the whole province at the maximum possible level.

Particularly in keeping with the economic vision of the present government, several structural policy changes have been made in the agriculture sector. The Government is working towards incentivising the Agriculture sector to a significant level to decrease input costs and increase profitability margins for farmers.

Innovation and creativity are the driving force behind producing breakthroughs in technology induced agriculture. The only way forward is to focus on creating knowledge capital. Redesigning agri-business processes and products is the need of the hour. Investing in training, information sharing and research makes agriculture globally competitive. We need to embark on a revolutionary mission to increase our knowledge capital. We need to improve quality, create a research culture and transfer this information and creativity to the marketplace through technology and business parks. Only by completing this cycle will we be able to revitalise the agriculture economy, create jobs and ultimately, increase GDP.

I would like to pay my heart-felt gratitude to the Government of the Punjab and the staff of the Agriculture Department for their contribution and conviction for the sector. I believe that with same conviction, we will be able to achieve high and most importantly, consistent growth rate in the coming years. Eliminating hunger and malnutrition through agriculture growth and diversification will act as a catalyst towards attaining food security. Additionally, by working on the vision of the current Government, we will be able to build a vibrant farmer community through mobilization of maximum capacity of the Agriculture Department and the achievement of sustainable development goals.

MALIK NAUMAN AHMAD LANGRIAL

Minister for Agriculture
Government of the Punjab Pakistan



**MESSAGE BY THE
SECRETARY
AGRICULTURE,
GOVERNMENT
OF PUNJAB**

As a country, in general and province in specific, inherited an agro-based economy, agriculture plays a major role in the economic development of Punjab. An increase in growth rate is a first step towards ensuring food security for all citizens. About 80% of the country's exports originates from agriculture, with Punjab contributing a large part of this amount. Hence, the Agriculture sector is a top priority for the Government of Punjab being a major contributor to the national economy, accounting for over 19% of its GDP.

Unlike before, the Agriculture sector has made conscious efforts to initiate and implement long- and short-term planning and strategy simultaneously. In this context, a dire need for a long-term Agriculture Policy to pave the way for sustainable and inclusive growth was identified. This Policy aims to put forward available human resources to sustainable and productive use. Our motto has remained to include all farmers across Punjab, whether landowners or landless, in the mainstream of the economic cycle with a spirit to provide benefit to all

those working in the sector. The policy proposes to ensure inclusive growth by increasing the level of targeted assistance for small commercial farmers, with landholding between 3 and 75 acres, rural women and rural youth. A number of reforms are proposed in the legal and regulatory frameworks governing the agriculture produce markets, including reconstitution of Market Committees; attracting private-sector investment in operation of wholesale markets; and of course, arranging direct farmer credit and farming opportunities. These reforms will pave way for the private sector to operate in a fair and free manner for the benefit of the entire value chain including farmers and consumers alike.

The Government, through the policy, promises unproductive and inefficient subsidies in agriculture to be phased out in a way that the productive ones are targeted towards small commercial farmers through cash transfers, and Government funds are utilized optimally with full benefits reaching the intended beneficiaries. At present, many of these subsidies

benefit larger farmers. The policy also recommends diverting ample funds to high priority areas including agriculture research and technology for sustainable increase in yields; promotion of high value and climate smart agriculture; and incentives for private sector in development of efficient agriculture produce markets.

With the efforts of many minds in the form of exhaustive stakeholder consultations, we are proud to have achieved this milestone that will enable us to walk the path of sustainable growth and development in Agriculture of Punjab. I would like to thank USAID Punjab Enabling Environment Project (PEEP) for their support and untiring efforts throughout this process.

DR. WASIF KHURSHID

Secretary Agriculture
Government of the Punjab Pakistan

CONTEXT FOR AGRICULTURE POLICY

The agriculture policy identifies and addresses following key challenges faced by the agriculture sector in Punjab:

- Lack of coherent policies, benefitting few and leaving many in the rural communities out, including the small farmers, rural women and rural youth, resulting in inconsistent / low growth and high rural poverty.
- An agriculture produce marketing system, which is outdated and uncompetitive, where few benefit at the expense of many. Farmers and consumers are losers in the current marketing system and middleman enjoys the lion's share of the margins.
- The lacks in access and affordability of good quality agriculture inputs, including fertilizer, seed, information, advisory, bank credit, mechanization services etc., has resulted in low average yields and poor profits for farmers.
- Lack of diversification resulted in over production of several major crops and unrealized potential in the other areas of agriculture including the horticulture, oilseed and pulses.
- Poor practices have depleted natural resources including land, water and air, clubbed with effects of climate change pose serious threats to agriculture productivity. The focus of climate change activities in the Department is limited to water conservation alone, and that too with limited impact so far.
- An outdated institutional structure and weak human capacities due to years of neglect and lack of investment in human capital has resulted in poor prioritization, inconsistency in service quality and widespread low performance.



AGRICULTURE SECTOR STATE AND PROFILE

Pakistan is an agriculture-based economy. Agriculture accounts for 19% of the GDP and provides livelihood to 42% of the rural population. The sector acts as a source of raw materials for country's major industries; textile, leather, rice, edible oil, sugar and various food processing industries. Agriculture-based products account for around three fourth of country's total export of which about 60% share is contributed by Punjab. Cereal and cash crops constitute a bigger share of the total value and enjoy an added importance due to their higher relevance in ensuring food security. Reliance of textile industry on cotton and export of rice has underlined continued focus on conventional crops.

Overall, two third of the total cropped area of Punjab is used by the 3 largest crops; wheat, cotton and rice. Fodder is another large produce of Punjab (10.6% share of the cropped area), which fulfills the need to feed the large livestock population of the province. Maize and sugarcane are the two other main crops. The share of fairly neglected non-traditional sectors of fruit, vegetables, condiments, flowers, pulses and oilseeds

TOTAL HORTICULTURAL PRODUCTION IN PUNJAB

67%

OF TOTAL NATIONAL PRODUCTION

in the total cropped area of Punjab is around 10%; in spite of their higher value addition and profitability potential for the farmers and other participants at forward nodes of these value chains.

Punjab's total horticultural production of 10.7 million tons accounted for 67% of the total national production. Punjab contributes 64% of the national fruit production, with citrus and mango being the two main contributors in Punjab's total fruit production, followed by guavas. olives, grapes, strawberries, peanuts and dates are some other mentionable fruits grown in Punjab with potential to increase production and profitability of farmers through concentrated promotional efforts. Punjab's share in national vegetable production (excluding potatoes) is 63% with a wide range of vegetables grown across the province for local consumption and some are also being exported. Punjab enjoys a monopoly in potato production by producing 3.83 million tons

AGRICULTURE ACCOUNTS FOR

19%

OF NATIONAL GDP

and claiming 96% share in the total national production.

Currently at US\$2 billion, since 2003, Pakistan rice export has witnessed a threefold increase from US\$626. Total global export market of fruits grew by 77% during the ten-year period with an average annual growth rate of 8.5%. Pakistan's fruits export also witnessed an average annual growth rate of 27%, however, it has been able to capture only 0.40% of the global market. Ranked 38th in the row of fruit exporting countries, Pakistan is far below its potential.

Pakistan's export profile for vegetables is dominated by 52% share of potatoes, mainly being exported to Afghanistan. Onions constituted the second largest share of Pakistani vegetables export. Pakistan has huge potential to increase its export in other categories such as tomatoes, carrots, turnips, cabbages, etc. Furthermore, the export to high-end markets at better margins can be enabled through adoption of

SET OF ACTIONS TO BE TAKEN TO ENSURE ACHIEVEMENT OF THE VISION OF A

**“DIVERSIFIED,
SUSTAINABLE, MODERN
AND MARKET-DRIVEN
SECTOR”**

WITH STEPS TO BE TAKEN IN THE SHORT TO MEDIUM TERM

good agriculture practices and improvement in post-harvest handling of produce. Pakistan has a small presence in export market of flowers, ranking 54th in the row of exporters with a meager market share of 0.01%; which is way below the country's actual flowers export potential. Rose is the major flower crop of Punjab, with several others including gladiolus, liliium, tuberose, marigold, gerbera and Jasminum etc.

Fruits, vegetables and other horticulture products are processed to make value added products like pulps, purees, pastes, concentrates, juices, jams, jellies, preserved fruits and vegetables, etc. Such products have a large international market. Pakistan's export for value-added horticulture products is US\$48 million, grown at 118% in the last 10 years, with an annual average growth of 13%. Although Pakistan managed to grow at a higher rate than the growth of the overall international market,

yet it managed to increase its market share to 0.1% only, which is way below its potential.

Pakistan grows 0.43 million tons of edible oilseed, 79% of which is grown in Punjab. Over one-third of the local oil extraction industry's requirements is met by locally grown oilseed, and Pakistan has to import additional US\$1 billion worth of oilseed to meet the demand of local processors. In spite of this, the country had to import edible oil of US\$2 billion to meet the domestic demand. There is potential to increase local cultivation of oilseed crops such as sunflower and canola to bridge demand-supply gap. Sunflower and canola also provides a good alternative to wheat crop for farmers, which is currently in surplus production and at a cost high than the international prices. Punjab grows 0.43 million tons of pulses and grams, accounting to 82% of national production. Import

PUNJAB ACCOUNTS FOR

60%

OF AGRICULTURE BASED EXPORT PRODUCTS

of pulses and grams since 2007, has grown at an annual average of 24% in the last 10 years, which should be substituted by encouraging local cultivation.

Overall productivity is low and large gaps exist between average yields, the progressive farmer yields, Punjab's potential and the World's best averages. This is mainly due to poor agronomic practices, low technology adoption and lack of innovation in the sector. As a result, agriculture growth in Punjab has been on a downward trend for many years. Over the last decade, its growth has decreased from 3.3% to below 3%; with a negative growth rate of -0.19% in 2015-16. The progressive farmers in the province produce around twice the yields as the average farmer (and over three times in wheat), and in sugarcane, cotton and rice, progressive farmers are approaching the world's best average.

A SUSTAINED ANNUAL GROWTH OF OVER 4% IS TARGETED THROUGH BROAD-BASED STRUCTURAL REFORMS IN THE AGRICULTURE SECTOR OF PUNJAB

The yield gap between best and average farmers highlight the importance of mainstreaming the best agronomic practices, technology adoption and innovation in agriculture, which in turn will make major crops

competitive internationally, increase profits for farmers, and free land currently under the cultivation of major crops for transition to horticulture, oilseed and pulses.

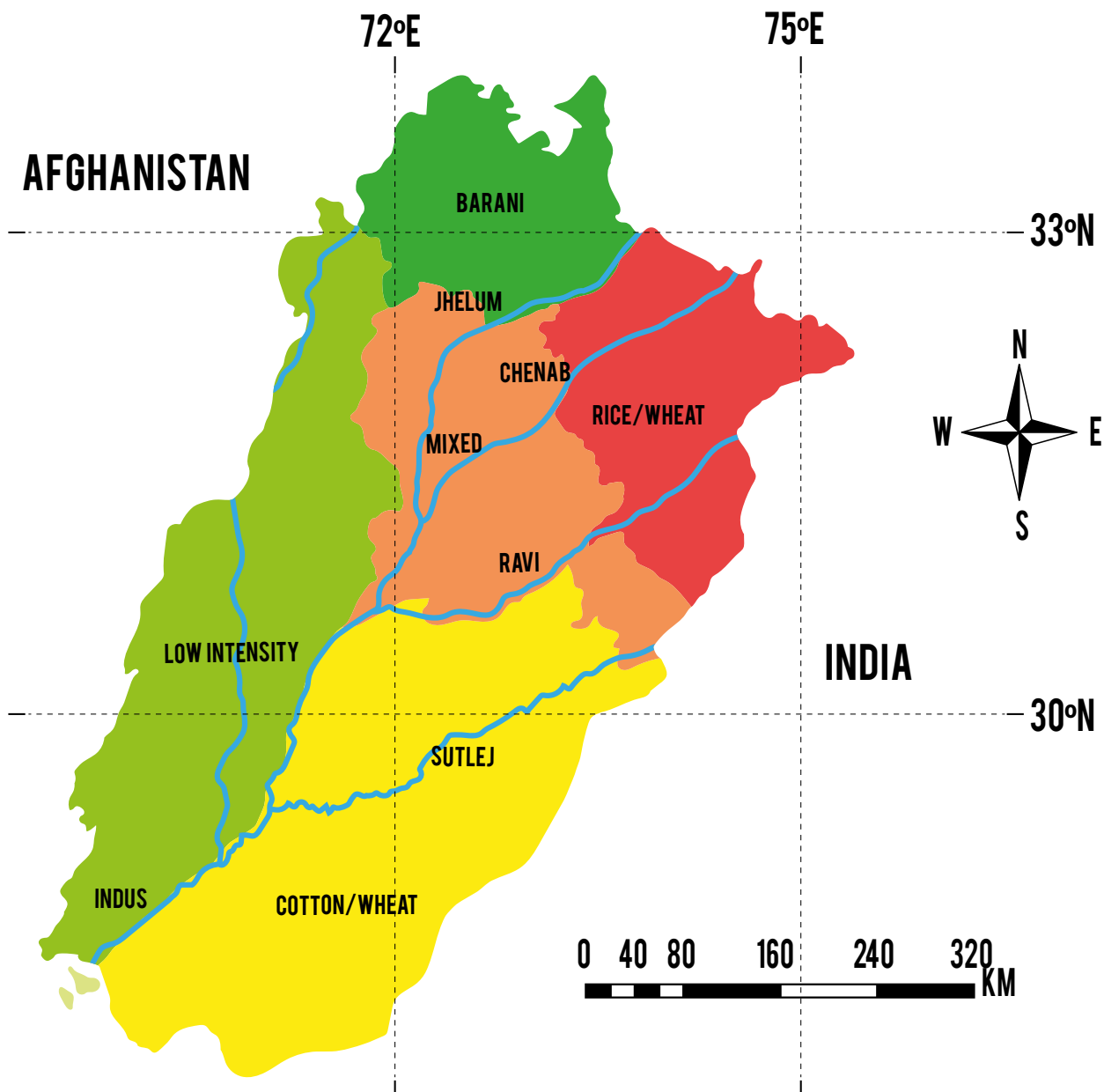
An efficient and diversified agriculture sector is imperative for food and nutritional security of the local population and can also contribute in foreign exchange earnings through export of surplus production.

TABLE 1: OVERALL YIELD GAPS

	Wheat	Cotton	Sugarcane	Rice	Maize
Actuals					
World's Best Average	8,995	5,436	123,157	10,181	9,766
Punjab Potential	9,687	6,919	177,916	9,884	11,861
Punjab Progressive	4,942	4,448	108,726	8,599	7,907
Punjab Average	2,768	2,135	61,875	4,690	6,138
Ratios to Punjab Average					
World's Best Average	3.3	2.5	2	2.2	1.6
Punjab Potential	3.5	3.2	2.9	2.1	1.9
Punjab Progressive	1.8	2.1	1.8	1.8	1.3
Punjab Average	1	1	1	1	1

Source: Government of Punjab Department of Agriculture 2015

FIGURE 1: REGIONAL DISTRIBUTION OF CROPS IN PUNJAB

**COTTON/WHEAT**

- Vehari
- Multan
- Khanewal
- Lodhran
- Bahawalpur
- Bahawalnagar
- Rahim Yar Khan
- Sahiwal
- Pakpatan

RICE/WHEAT

- Gujranwala
- Gujrat
- Sialkot
- Hafizabad
- Mandi Bahauddin
- Narowal
- Lahore
- Kasur
- Sheikhpura
- Nankana Sahib

MIXED

- Sargodha
- Khushab
- Faisalabad
- Jhand
- Toba Tek Singh
- Chiniot
- Okara

LOW INTENSITY

- Bhakkar
- Mianwali
- Dera Ghazi Khan
- Rajanpur
- Leiah
- Muzaffargarh

BARANI

- Attock
- Rawalpindi
- Jhelum
- Chakwal



ECONOMIC ANALYSIS FEEDING POLICY STIPULATIONS

Total Factor Productivity (TFP) in agriculture is currently the lowest in the region; and, it has been declining since the 1980s which is otherwise regarded as the golden period of Pakistan’s agriculture. Not only is aggregate TFP low and declining but the aggregate mask large variations across regions and size of farm categories which means that many regions and categories are more worse off than the average in terms of TFP and its decline.

While TFP has been stagnant, growth has come mostly from greater input use rather than technological change or better practices. Factors contributing to this decline include a lack of new seed varieties, resistance of pests to existing pesticides, stagnant irrigation methods, decreasing soil health resulting from poor farming practices, as well as deficiencies and imbalances in fertilizer use and a failure to leave the land fallow.

In the 1960 Agriculture Census, only 19% of all operated farms were under two Hectare (Ha) size. In the 2010 Census these had increased to 67 percent. The average size of farm in

this under-two-hectare farms is about one hectare, with an average number of 2.6 fragments in each farm. This average size of farm is not viable for use of advance mechanization practices without introduction of creative and out of the box service solutions.

At an estimated poverty rate of 42.6%, Punjab is home to the highest absolute number of poor people in the country and has driven most small farmers to diversify substantially out of farming and seek additional sources of income merely to subsist. For farm households up to 3 acres, crop income is now less than half of total household income.

FIGURE 2: TOTAL FACTOR PRODUCTIVITY GROWTH SINCE THE 1980’s

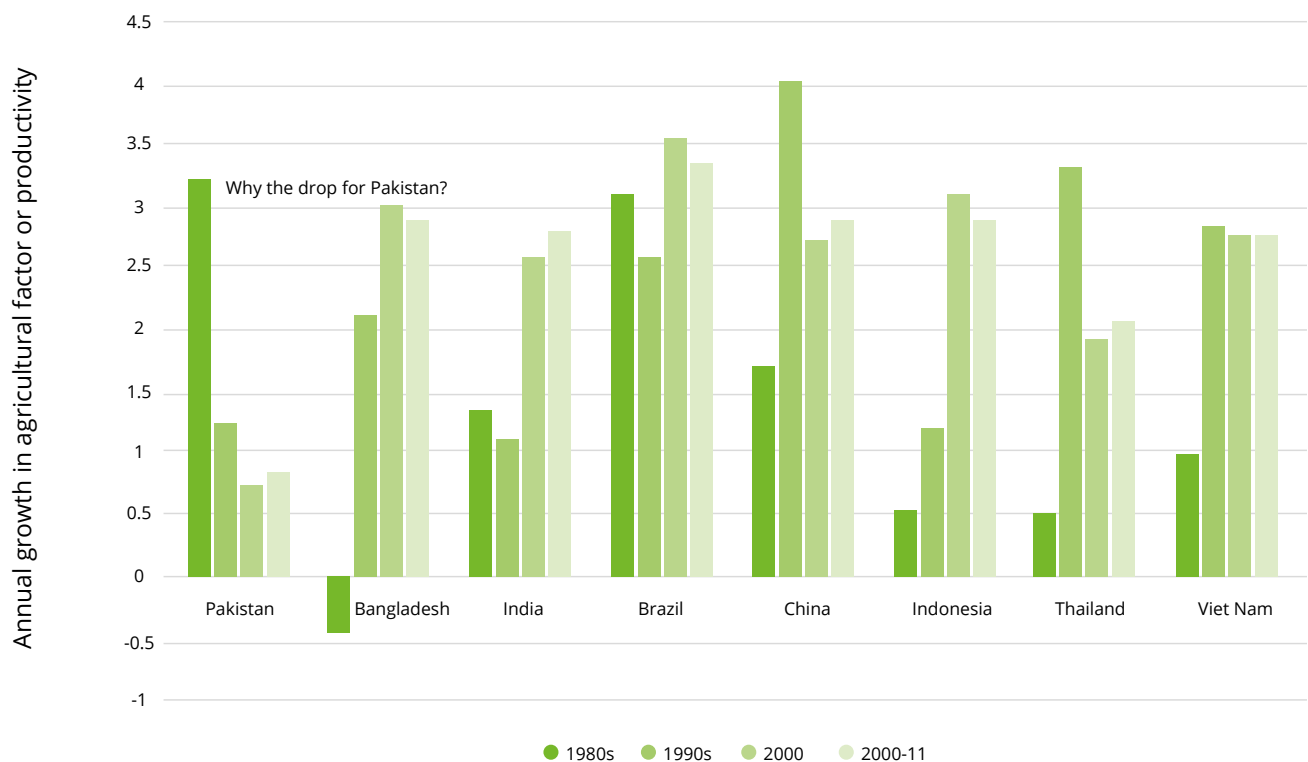


FIGURE 3: INCREASING LAND FRAGMENTATION

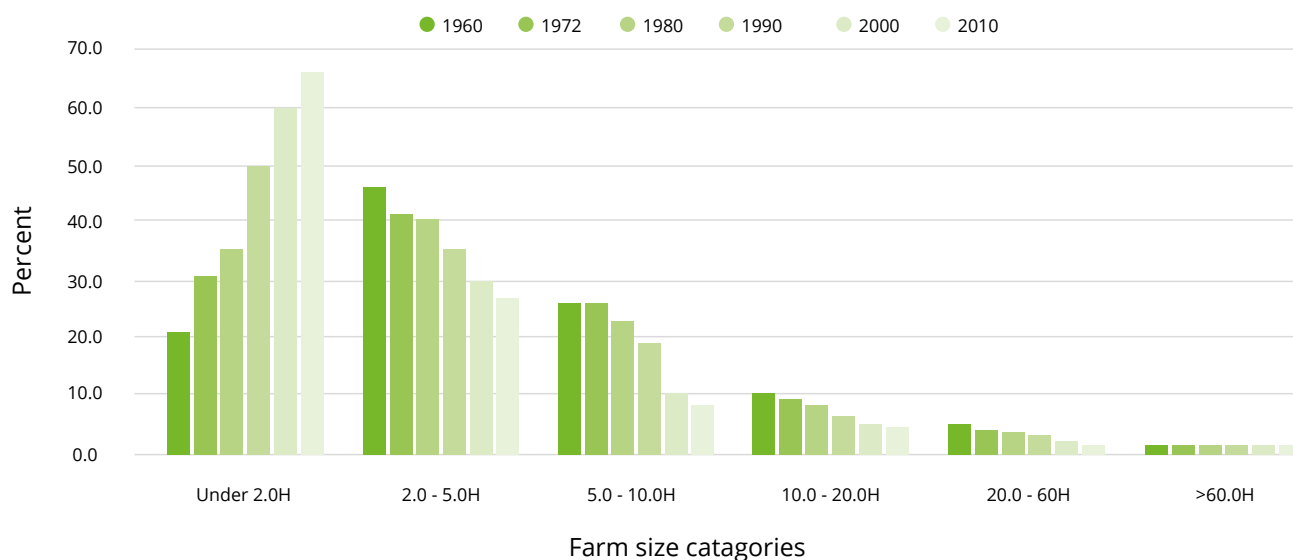


TABLE 2: POVERTY VARIATIONS BY SIZE OF FARM 2014

Size of Farm Categories	Poor in each category%	Poor as% of all Poor	Farms in Total Farms%	Acreage in total Acreage%	Proportion of Poor Farms in category%
Non-Farm	62.4	66.7			NA
More than zero but less than 3 acres	62.6	17.5	42.1	10.5	52.5
3 to less than 5 acres	42.6	6.3	22.4	14.4	19.0
5 to under 12.5	44.2	8.1	27.5	36.4	24.2
12.5 to under 25	33.7	1.3	5.7	16.4	3.8
25 to under 5	13.9	0.1	1.5	8.0	0.4
50 to under 75	0.0	0.0	0.3	3.3	0.0
75 and above	0.0	0.0	0.5	11.0	0.0
Total	42.6	100.0	100.0	100.0	100.0

Source: Calculated from the HIES 2014

There are variations across regions, and the more disadvantaged regions are also more affected, as poverty in the mixed cropping zones within these small farms is 32%, while in the cotton/wheat zone the rate

reaches 64%. Beyond just small size, these poor farms see high levels of illiteracy, and a lack of access to credit and better markets, which become critical constraints to the adoption of technology. Thus, most

such farmers cannot take risks associated with modernization and make a move to high value crops.

TABLE 3: POVERTY VARIATIONS BY SIZE OF FARM ACROSS AGRO-CLIMATIC ZONES 2014

Size of Farm	Rice/wheat Punjab	Mixed Punjab	Cotton/Wheat Punjab	Low Intensity Punjab	Barani Punjab
more than zero but less than 3 acres	48.9	32	64.2	43.7	65.2
3 to less than 5 acres	21.8	25	15.9	20	16.3
5 to under 12.5	26.5	38.2	16.6	29.2	17
12.5 to under 25	2.8	4.7	2.6	6.5	1.6
25 to under 50	0	0	0.6	0.7	0
50 to under 75	0	0	0	0	0
75 and above	0	0	0	0	0
Total	100	100	100	100	100
Total	42.6	100.0	100.0	100.0	100.0

Source: Calculated from the HIES 2014

As the size of an economy grows, the relative share of agriculture's contribution declines, as does its influence over rural livelihoods and poverty reduction. However, research shows that agriculture growth is still the main mechanism for inclusive poverty reducing growth in Pakistan; not only to ensure food and nutrition security, but also to boost the economy and generate incomes and demand for local goods and services. Analyses show that this inclusive growth can still

be generated by focusing on farm categories between 3 to 75 acres in Punjab, a perspective that underlies the activities proposed in this policy.

Achieving food security through self-sufficiency in food grains, especially wheat, has long underpinned sector policies, investment priorities and public expenditures. However, food security is not just about production and availability, but includes four components, i.e. availability, accessibility, utilization and sustainability. Food insecurity in Punjab remains high. Data suggest

that 37% of households in Punjab, and more than half of households in certain divisions, are consuming less than the recommended average daily number of calories¹. Food based nutrient intake inadequacies are also high and range from 23% for protein to 67% for vitamin A². Two out of every three households are unable to afford a nutritious diet with current food expenditures³. With this situation, it is not surprising that one in ten⁴ children in Punjab dies before the age of five, and one out of every three⁵ that survive is stunted and/or underweight.

¹ GoP (Government of Pakistan) 2017. Food Security Assessment Report. Islamabad: Ministry of National Food Security and Research. Forthcoming

² Ibid.

³ GoP (Government of Pakistan) and WFP (World Food Program), 2016. Minimum Cost of the Diet–Pakistan. Islamabad: Ministry of Planning Development and Reforms, Planning Commission and World Food Program.

⁴ MICS (Multiple Indicator Cluster Survey). 2011. Monitoring the situation of children and women, Lahore: Bureau of Statistics, Government of Punjab. (<http://bos.gop.pk/finalreport> Accessed 05 June, 2017)

⁵ MICS (Multiple Indicator Cluster Survey). 2011. Monitoring the situation of children and women, Lahore: Bureau of Statistics, Government of Punjab. (<http://bos.gop.pk/finalreport> Accessed 05 June, 2017)

TABLE 4: SOURCES OF INCOME VARIATIONS BY SIZE OF FARM SIZE 2014

Farm Size Categories (Punjab)	Crop Income	Livestock Income	wages and salaries	Business Income	Rental and Pension Income	Other transfer Income	Remittances	Total Income
No Land	0	4	45	25	3	2	20	100
0 to under 3	28	13	26	13	4	2	13	100
3 to under 5 acres	49	16	14	5	4	2	10	100
5 to under 12.5	65	13	7	4	4	1	7	100
12.5 to under 25	70	11	6	2	6	0	3	100
25 to under 50	73	9	3.2	2.1	10	0.1	3.5	100
50 to under 75	81	11	5.5	2.1	0	0.1	0	100
75 and above	91	4	2.3	0.4	0.5	0.1	1.9	100
Total	28	8	29	16	4	2	14	100

Source: Calculated from the HIES 2014

POLICY FRAMEWORK

Policy framework is used to differentiate between overall economic development objectives of the government, specific goals of agriculture sector development and framing policies and sub-policies and aligning means to accomplish policy objectives. It defines a set of actions to be taken to ensure achievement of the policy goals. With success, significant gains in food security, poverty reduction, and a profitable and flourishing agriculture in Punjab will be achieved.



POLICY OBJECTIVES

The overall policy objectives of the government as stated in the government agenda are summarised as under:

- Enhance economic growth of Pakistan to sustain political freedom and economic wellbeing of its people
- Raise standards of living of the population in general and rural population in particular
- Maximise income and agriculture sector contribution to the national GDP and exports



POLICY GOALS

Government overall vision and broader economic development objectives are further articulated in terms of specific goals for the agriculture policy as under:

- Enhance competitive position of agriculture sector in line with global and domestic market demands, including to benefit from China Pakistan Economic Corridor (CPEC) opportunities
- Increase food production to improve food quantity, quality and nutrition diversity through higher yields and better crop mix
- Increase farmer profitability to raise living standards of the farming families, with increased participation of rural women and youth
- Conserve agricultural resources with efficient use of land, water and labor deployed for agriculture in the province
- Enhance sustainability and resilience in the wake of climate changes and implications thereof
- Enable private sector participation in agriculture value chains with increased investment, technology infusion and management resources

- Government of Punjab stipulates specific urgencies in the immediate future articulated in its 100 days agenda. The agriculture policy therefore proposes specific policy means to achieve results in the short, medium and longer term. A set of policy measures aim at devising means to achieve long term goals in line with vision of the Prime Minister of Pakistan.

Policy thrusts and strategic means to accomplish overall objectives and goals are indicated below:

- Increase farmer profitability
- Reduce cost of inputs for farmers
- Introduce regenerative agriculture and weed management
- Encourage crop diversification to improve crop-mix
- Optimize subsidy programs through targeting and ICT technologies
- Improve access to finance for farmers through Mobile Money Operators
- Transform agriculture

produce markets

- Initiate a markets and storage expansion drive to ensure competitive prices, establish warehouse receipt financing
- Encourage SME level food processing with focus on export
- Massively expand water conservation efforts



THE ROLE OF GOVERNMENT

This policy recognizes that a fundamental change in the development approach and role of the government in policy development and implementation is imperative to bring qualitative improvement in the agriculture sector competitiveness, wherein the private sector leads growth and the government assumes a role of facilitator and a regulator (with minimum of regulations) to ensure that a level playing field exists particularly for the marginalized actors in the sector.

The policy therefore envisages Government's role to formulate

conducive policies, provide support that enables the private sector and civil society towards achieving broader social goals. It efficiently functions, to evaluate and revise policies; supports necessary public infrastructure and regulatory enforcement. To pursue these goals, the government focuses on enabling systems and mechanisms to make credible market information, financing, research based production knowledge, empirical data to encourage decision making for new investments, while facilitating civil society and the private sector to provide quality inputs and services on competitive terms. Government assumes role of market facilitator with necessary regulatory functions while keeping the regulatory burden and cost of compliance to the minimum.



TARGET BENEFICIARIES

While the agriculture policy aims to drive benefits for the overall population of the province, especially the farming communities, it particularly targets at following beneficiary groups to ensure that the growth in the sector is inclusive and benefits are widespread and sustained:



THE SMALL COMMERCIAL FARMERS (SCFs)

So far, the government support has mostly been given to farmers with less than 15 acres of landholding. According to an expert analysis, encouraging Small Commercial Farmers (SCFs) with landholding between 3 to 75 acres will have far reaching benefits, including increase in farm incomes and farm productivity etc. As a result, it would lead to multiplier effects and stimulate the rural non-farm economy as well. The increase in economic activity at SCFs will increase earning opportunities and reduce poverty for rural communities including the landless farmers, rural women and rural youth. Farmers with landholding of up to 3 acres operate below level of sustenance and will benefit more from social protection initiatives.



THE RURAL WOMEN

A key focus in addressing the agriculture related issues of growth, poverty reduction and food security is strengthening the voice and status of women in the rural Punjab. Women's role in agriculture in Punjab cannot be overstated. Studies show that a more empowered female workforce could raise agricultural productivity exponentially. Women make up 39% of the labor force in agriculture and approximately 74% of the total female population is dependent on agriculture. The economic inclusion of rural women will increase the household incomes, reduce poverty and make the Punjab food and nutrition secure.



THE RURAL YOUTH

Pakistan currently has the largest population of young people ever recorded in its history. 60% of people are below the age of 30 years – and a large part of it, lives in rural areas. The rural youth moves to cities for employment, which creates pressure on the urban centers. This is mainly due to fewer earning opportunities in the rural areas. Those who remain back in the rural areas are either underemployed (as irregular daily wagers or on odd jobs) or unemployed. The youth bulge has become a burden instead of strength, due to lack of proper employment opportunities, therefore the rural youth of Punjab will be a key beneficiary of the policy actions.

“

**THE POLICY PROPOSES TO INCREASE
LEVEL OF TARGETED ASSISTANCE FOR
SMALL COMMERCIAL FARMERS, WITH
LANDHOLDING BETWEEN 3 AND 75 ACRES,
RURAL WOMEN AND RURAL YOUTH.**

**A RANGE OF POLICY MEANS AND MEASURES
ARE PROPOSED IN THE SCHEMES IN THE
FOLLOWING SECTIONS.**

”

EXPANSION IN AGRICULTURE PRODUCE MARKETS

Agricultural output markets that function well can contribute significantly to the development of an agricultural sector.

Unfortunately, due to several factors the agriculture produce marketing system of Punjab has been unable to evolve overtime and therefore it lacks competition. The agriculture wholesale sector in particular has remained underdeveloped, as the total number of mundis increased from 169 in 1962 to 233 in 2016, a growth of 64%, while the total volume of commodities increased several hundred percent. Consequently, ever more agricultural produce needs to pass through a limited market infrastructure, which is already deteriorated due to years of neglect.

Farmers have to rely on the commission agent (arthi) not only to sell produce but also for other critical services like borrowing money, market information and input supplies etc., which puts the commission agent in a unique position of strength to the degree that it has started to exploit the farmers and keeps the lion's share in the margin. Farmers' ability to bargain a better price can be restored by increasing competition through legal and regulatory reforms, promoting a robust SME sector in wholesale and agro-processing sectors, provision of warehousing services to the farmers so it can stock and sell at better price in later months, and unbundle critical services presently being provided by commission agents, including bank financing through eCredit scheme and introduction of warehouse receipt financing model etc.



REFORMS IN AGRICULTURE MARKETING LAWS AND REGULATIONS

Wholesale markets are an essential component of any agricultural marketing system. This is particularly so in regions like Punjab where farm holdings are small and fragmented, and cooperatives remain largely underdeveloped. Farmers need effective and profitable marketing outlets for their produce. Aside from facilitating access to markets and reducing postharvest losses, well-managed wholesale markets are essential for improving public health and food quality control.

Currently, the marketing system neither provides fair returns to growers or value for money to

consumers. Market yards have poor sanitation and inadequate infrastructure (made worse by encroachments) contributing to 30-40% post-harvest losses. A long supply chain dominated by cartel of middleman captures 60-70% of value to the detriment of growers. Manipulated auctions with no true price discovery are accompanied by a host of malpractices aimed at growers viz.-a-viz. overcharging, illegal deductions, delay payments and under weighment.

Establishment of new markets has also not kept pace with the times as only 64 public (including the ones relocated) and 29 private markets have been set up since 1963. This number is very small in comparison with the increase in the volume of agricultural produce. Consequently, more and more agricultural produce has to pass through the existing market infrastructure, which is deteriorating over time. Management of Public markets is

given over to politically appointed market committees and official levy of Rs. 2 per quintal which is linked to weight is barely enough to meet salaries of officials giving no fiscal space for spending on infrastructure facilities.

The inefficiency of collection is shown by the fact that the levy is charged beyond the market yard over the entire "notified area" (roughly equivalent to district) and entities that receive no services from the market (e.g. rice mills, processing units) have to bear the burden of taxation.

To meet the different challenges head-on, a number of reforms are proposed in the legal and regulatory frameworks governing the agriculture produce markets. Some key reforms themes are as follows:

1

Market Committees

Market committees are reconstituted so that political interference is curtailed and true representatives of stakeholders particularly farmers are selected with the help of local Chambers of Commerce and the chairman is also chosen from the category of farmers.

2

Ad-valorem Fee

The concept of Notified Area is abolished, and market committees are confined to collecting fees on a 1% ad valorem basis on produce (value of the goods) that is offered and sold to the market. This will produce sufficient revenue to meet overheads and development costs whilst doing away with the imposition of tax on actors that do not use public services.

3

Enhanced Competition amongst Brokers

Since farmers are currently constrained to channel their produce through a limited number of commission agents, wholesalers known as pharrias who perform a number of vital functions from bringing produce to market and breaking bulk into salable units are given legal recognition and registered. This will increase competition and marketing options for farmers. The licensing of market players will be replaced by easy registration.

4

Private-Sector Investment

To attract private investment for setting up markets and reduce the burden on the state, entry barriers are removed, and the procedure greatly simplified. As long as minimum safety standards are met, the private sector would be free to set up and operate wholesale markets and collection centers, out of public mundies.

5

Farmer Credit

By making credit available through formal banking channels, through eCredit and warehouse receipt model, the dependence of farmers on commission agents for input credit is reduced, which will increase bargaining power of the farmers.

6

Direct Marketing

Farmers are allowed to market their produce directly without going through middleman at unregistered farmer markets located at suitable venues.

7

Storage Facilities

To reduce postharvest losses and farmers to benefits from seasonal variations in prices of agriculture produce, a network of warehouses/cold-store are expanded through matching grant scheme under Agriculture Innovation and Development Entity (AIDE) fund.

These reforms will require changes in agriculture produce market laws and regulations, which will pave way for private sector to operate in fair and free manner for the benefit of entire value chain, and not just the few. The reforms will be supported by Government's investments in infrastructure development in the existing markets, so they can become efficient, while the private sector also gears itself up to develop new produce markets either independently or in public-private partnerships. This will increase competition in the wholesale sector to the benefit of farmers and consumers. The policy recommends putting in place a suitable institutional structure

as Punjab Agriculture Market Regulatory Authority (PAMRA) to strengthen its role as the regulator; in collection and dissemination of market information; and to play a role in private sector development as a facilitator and enabler.



STORAGE EXPANSION TO ENSURE COMPETITIVE PRICES FOR FARMERS

Lack of proper warehouse storage and maintenance cause damage to the grain resulting in significant wastages. As per the estimates,

13.8% of grain production in Punjab is wasted due to losses at different stages⁶. Saving this loss would mean providing food to millions of people. The absence of storage facilities deprives rural farmers to take advantage of any possible price hike in future months; and weakens their bargaining position compelling them to sell their produce at lower prices. Increased supply in the market in an uncontrolled manner further decreases grain prices adversely affecting farmer profits. Non-existent access to finance for farmers adds to the problems. In summary, the farmer has to dispose his produce as early as possible due to inadequate storage; needing funds to meet

financial obligations for the next crop harvest and meet his social obligations; and more importantly to clear his debts with the middleman (arthi).

Grain prices are the lowest at the time of harvesting and usually increase in the following months. The rise in prices varies with the type of grain. Increase in price over the months is the highest in case of rice. The mills procure paddy from the farmers and store it in their warehouses. They keep processing paddy in the following months to make finished rice. There is an increase in price of rice in the months the benefit of which is taken by the millers and traders. In the case of maize also, there is an increase in prices in the months following the harvesting. As per the market feedback, this increase may be as high as Rs 200-300 per mound or up to PKR 1000 in August⁷. Similarly, the deregulation of wheat will also create opportunities for farmers to benefit from the seasonal variations in market prices of wheat and maximize their profits through storage of grains.

The policy recommends addressing the above-mentioned observations by building storage facilities in the rural areas, which may be used by farmers and other value chain actors. The proposed project aims to develop public-private partnerships (PPP) that would support building warehouses with treatment

facilities in selected districts based on pilot studies undertaken for grain crops, such as rice, wheat and maize. A feasible public-private modality needs to be worked out. The farmers can benefit from this price hike if secure storage facility is made available to them. Currently, the price trends appear to be random with spurious fluctuations in prices mainly due to lack of grain storage facilities with the producers. Establishment of the proposed rural warehouses will bring in stability in grain markets and make the price trends more predictable for buyers and sellers.

Several stakeholders working simultaneously make an important prerequisite. Hence, the entire model will reflect a wholesome eco-system for farmers where the private sector will likely bring in the required investment and its professional management expertise that will increase the probability of the project's success; and the government will assist as facilitator and regulator. It is important to fully understand the business model since the private sector invests only if the business proposition can offer the expected returns. Efforts to attract the private sector to invest in storage facilities in the past have received modest responses. It appears that providing more information on the potential investment opportunity will gradually help the private sector to better understand

the associated cost and benefit – through options identified under the PPP model: Project Development Facility; Viability Gap Funding; and Transaction Advisory – and assuring solid interconnected networks will increase their likelihood of investment.

The proposed business focuses on establishing a warehouse for grain storage in the rural areas to be used by farmers for storing grain in a secure and transparent arrangement, thereby reducing grain wastages; and empowering farmers with greater purchasing power allowing them to sell their produce at potentially higher prices in later months. The warehouse network will also help stabilize grain market prices that will also contribute towards strengthening farmer's negotiating position and increase his profitability. The proposed storage facility will have allied equipment for storing the product in the best possible manner which ensures its quality. This will include grain cleaning and grain drying equipment. Farmers/traders will be responsible for bringing their grain in bags or in bulk form to be stored in the warehouse (in bags or in small-sized silos). Service charges from these allied services will be the other source of revenue for the project. Cash in hand for the next harvest – an equally major concern for farmers – will be provided through bank support. Value chain improvement – in addition to higher opportunities for income revenue generation – will be provided by creating

⁷ Maize wholesale price in August 2017 in Okara market was Rs 918 per mound (CRS, Agriculture Department, Punjab).

the right eco-system to connect farmers to advanced market linkages (PMEX, etc.) and equipping farmers with focused extension services / trainings.

The policy initiative will develop an integrated and comprehensive eco-system for farmers as a solution to their surplus grain storage issues through an innovative agriculture (warehouse receipt) financing system where farmers' produce will be accepted as collateral for formal financing by banks and shall be regulated by the Government through collateral management company regulations. The CMC regulations are being formulated at the Federal level so all provinces can benefit from it.

The initiative is proposed to have three main components:

- **Component-A** will support construction of or purchase of warehouses on land available in suitable locations based on crop cultivation (mentioned above). The Warehouse Operator (WHO), in this case a private investor should have financial capacity and a clean record with trained staff availability; and credibility to submit an affidavit stating that he is responsible for ensuring maintenance of quantity, weight and quality of the produce.
- **Component B** envisages private sector maintenance and management of the warehouses. A separate entity / third party evaluator will test grain quality when

the farmer delivers it at the warehouse. The farmer will incur a one-off cost of carrying the crop produce, therefore, highlighting the need for warehouses to be located close to the fields.

- **Component-C** will provide the financial model of the storage system, consisting of a (i) warehouse receipt system involving banks as lenders; and (ii) collateral management company (CMC) a Government entity in the role of a regulator.



BUILD VALUE-CHAINS AND INCENTIVIZE SMES IN AGRO-PROCESSING.

The major crops will remain important in the crop mix of Punjab, but the growth potential for most major crops have been exhausted. Farmers' profits can yet be increased through yield improvement – which Punjab has lowest in the region and the world. This, in part, can be achieved through improved accessibility of farmers to suitable technology and better advisory services. This highlights the significant role private sector SMEs can play through provision of farm technologies to farmers, including for mechanization, quality seed, certified nurseries, digital information and advisory

services. However, due to varied reasons the concentration of SMEs in these sectors have been below the requirement, resulting in suboptimal performance in the agriculture sector.

The growth in horticulture sector in particular is mainly hampered by under developed value chains with low investment in the agro-processing and value-added sectors, including for fruits and vegetables pack-houses required for exports of fresh fruits and vegetables to high-end international markets. Establishment of processing units for pulps, purees, pastes, concentrates, dehydration and oil extraction (edible and essential) are required in combination with suitable storage, packaging and transportation businesses in private sector to make horticulture realize its full potential. This has been demonstrated in case of kinnow in past and increase in mango export through establishment of pack-houses in the recent past that the crop sector grow as the processing sector grows. A robust processing sector will position Punjab's agriculture to benefit from CPEC connectivity and increase exports of value added agriculture from Pakistan.

The agribusiness SMEs suffers from the market failure, which means the enterprises and businesses are unable or reluctant to initiate or expand operations and outreach to sectors and areas that are important to the welfare of society. A major reasons of market failure is the

unavailability of formal credit to agribusiness SMEs, especially for expansion in new business categories. The other reasons include access to technology and availability of technical advice to start a new business or expand the existing business. The market failure in agriculture sector of Punjab presents an opportunity for Government to help develop better ways to increase levels of economic inclusion. The intelligent use of public resources through matching grants in high priority areas along the agriculture value chains is being proposed as policy intervention to overcome market failures, increase the market participation of farmers, and leverage the financial and managerial resources of privately owned agribusinesses to uplift farming communities and ultimately lead to sustainable growth.

Matching grants is an instrument that provides support to business entities, through a competitive process, to implement commercial activities and ultimately ensure markets to operate effectively. The concept of a matching grant is simple; the Government designates funds to high priority agribusiness SMEs crucial to the development of agriculture sector. The agribusiness SMEs apply for grants. The agribusiness SMEs selected through competitive process receives Government's in-kind grants of up to 50% of project's cost in form of technology transfer (machinery, equipment and software is given to SME

by Government) and technical assistance (business development and advisory services is given to SMEs by business development experts on Government's subsidy). The agribusiness SME can invest its share in project in cash or in-kind.

The matching grants will help agribusinesses to achieve higher productivity and efficiency that would benefit the farmers, broader rural society and not just the SME agribusinesses, who are direct beneficiaries of the projects. The benefits to the farmers can be categorized as:

- Improvement in access to high quality inputs leading to better crop quality, higher yields and increase profitability of farmers
- Improvement in connectivity with domestic and international markets resulting in lower wastages and better prices for farmers

The benefits for rural society will include:

- Creation of new jobs in rural areas, including for women and youth
- Development of rural enterprises and cottage level businesses associated with the agro-processing industries

The policy recommends that matching grants are available to any person or entity that is capable of improving on-farm productivity or efficiency and quality all along the value chain, with special consideration for women and young entrepreneurs. Preference

is given to strategic and innovative agri-businesses contributing to the yield improvement through technology and innovation, improving access of farmers to highly rewarding markets, as well as those located in rural areas to generate employment in rural Punjab. The SMEs involved in value addition of horticulture and oilseed sectors will be given special consideration to benefit from matching grants.

The Government's contribution in a grant can range between PKR 2.5 million to PKR 35 million depending on the financial requirements of an investment project. The Government's share is matched by the private investment to value no less than grant being given by the Government. The Government contribution is as technology transfer and technical assistance. Provision of technical assistance is made mandatory requirement for all grants being awarded in matching grant scheme. The private contribution in the project is in cash or in-kind, which can include any existing assets such as land, building or machinery etc. owned by the private investor being assigned for use in investment project.

It is further recommended that matching grant scheme allows two selection streams for flexibility and ensuring inclusivity of small agribusinesses. The first stream lets the SME bidder take lead role in design of investment projects with limited advisory support provided by the fund managers,

and this too only if required. In the second stream the fund manager recruit professionals to design the grant programs at a sector or cluster level and invite SME agribusinesses from the particular sectors or clusters to participate through publicizing requests for applications. The second stream will ensure that SMEs who cannot develop complex project proposals can also benefit from the matching grants.

The policy proposes a transparent organization framework by having separate governance and management functions. Owing to the specialised nature of matching grant scheme, and limited capacity within the Department for managing such schemes, the management and implementation can be outsourced through a competitive process to a private firm having experience in execution of private sector development grant programs, while the governance function will remain with the Government through putting in place an appropriate institutional mechanism. Department of Agriculture is recommended to create / designate a specialised unit as Agriculture Innovation and Development Entity (AIDE) Fund for governance and execution of the scheme. It will be a lean structured organization governed by a Committee with majority representation and chairman from the private sector.



MARKET INTELLIGENCE AND INFORMATION DISSEMINATION

Market information plays a key role in policy making and mobilizing investment in a sector. The Government under Punjab Agriculture Markets Regulatory Authority (PAMRA) will build necessary capacities in collection and dissemination of market intelligence and information. The Punjab Food Outlook is a publication, which is being published by the Department of Agriculture in partnership with FAO and IFPRI to facilitate decision-making by providing viable forecasts for the area cultivated, yields and production of major crops, in addition to providing a commodity balance sheet based on crop stocks, utilization, and output in the Punjab province. It is being published on lines of the Global Food Outlook publication of FAO.

It will allow policymakers and farmers to take preventive actions by anticipating upcoming shocks and help them to set benchmarks by assessing the

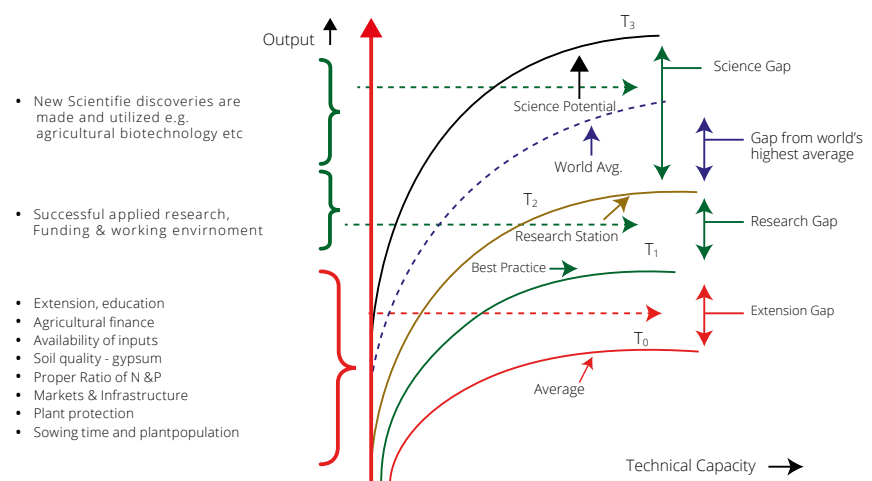
opportunities and risks in the domestic and international markets. Timely and evidence-based decisions are necessary for overcoming the gaps between food production and consumption growth, and to increase access of the growing population to affordable food items. The first round of publication will be published in December 2018, following which Agriculture Department along with IFPRI can explore possibilities to partner with academic and research organizations and institutionalize the development of Food Outlook for regular publications. The policy support continuation and institutionalization of Food Outlook by the Department of Agriculture.

IMPROVE ACCESS AND QUALITY OF AGRICULTURE INPUTS

The policy proposes improvement in access and quality of agriculture inputs through optimization of subsidy programs so they are used as incentive to encourage positive farming practices; ensuring bank loans are available to farmers by making the process easy through ICT-based systems development; strengthening of agriculture innovation and research; making legal and regulatory reforms in seed sector to promote fair play and competition; and finally improve availability of information and advisory services to farmers so they can adopt good agriculture practices.

The figure 4 suggests extension, research and science gaps provide the breakdown of differences between the average production in developing countries and the maximum obtainable output from agriculture farming in the developed world. The most immediate measures are to increase yield through improved access to agriculture inputs including finance, seed, fertilizer, mechanization, information and advisory services etc. The other immediate measure is to improve agriculture innovation and research, so it continues to improve quality of inputs. In short, the agriculture in Punjab can improve significantly and quickly by improving access and quality of agriculture inputs.

FIGURE 4: ECONOMIC IMPACT OF AGRICULTURE RESEARCH AND EXTENSION



Source: Adopted from Evenson, Robert E. (2002) *Economic Impacts of Agricultural Research and Extension*. Center Reprint No. 578. Economic Growth Center, Yale University.



OPTIMIZE SUBSIDY PROGRAMS

It is important to note that Punjab's agricultural sector is hugely subsidized⁸ and these subsidies are not reaching the

majority of the farmers. The sector received annual subsidies (direct and indirect) of PKR 135 billion for FY18, with 41 percent

being paid by the provincial government, as detailed in the following table:

AGRICULTURE SUBSIDIES IN PUNJAB (FY18, PKR MILLION)			
Item	Subsidies allocated by the Federal Government in Punjab	Subsidies allocated by the Government of Punjab	Total Subsidies
Fertilizer Gas Subsidy	31,500 ¹	0	31,500
Reducing General Sales Tax (GST) on DAP from 17% to 2%/bag	9,660 ²	0	9,660
Reducing General Sales Tax (GST) on Urea from 17% to 2% 100/bag	8,190 ³	0	8,190
Reduction in electricity tariff for tube wells from PKR8.85 to 5.35/kwh	22,995 ⁴	4,305	27,300
Subsidy on imported fertilizer	3,570 ⁵	0	3,570
E-voucher based subsidy for Phosphate & Potash fertilizer		1,376	1,376
Wheat procurement scheme		34,965	34,965
Wheat export subsidies	1,050 ⁶	0	1,050
Interest-free loans to farmers		5,985	5,985
OFWM Activities (HEIS, Solar, Watercourse Improvement, LASER land Leveler and Tunneling)		3,858	3,858
Irrigation M&R		6,300	6,300
Operational subsidy for land development through Bulldozer		404	404
Subsidy on Olive plants		86	86
Cotton, Oilseed and wheat seed		871	871
Crop insurance through CLIS ⁷		270	210
Total	76,965	58,360	135,325

Source: Federal and Provincial Budget Speeches 2017-18, and Agriculture Department.

⁸Subsidy on fertilizer, pesticides, electricity, loans, irrigation water, groundwater, etc.

¹ Total gas subsidy to fertilizer manufacturers is PKR 44.6 billion while Punjab accounts for approximately 70 percent of total fertilizer use in Pakistan. ² The total subsidy is PKR 13.8 billion of which 70 percent is in Punjab. ³ The total subsidy is PKR 11.8 billion of which 70 percent is in Punjab. ⁴ The total subsidy on electricity for tubewells is PKR 27.0 billion and 85 percent of tubewells are in Punjab. ⁵ The subsidy on imported fertilizer is budgeted at PKR 5.0 billion of which 70 percent can be assigned to Punjab. ⁶ The total subsidy is PKR 1,501.5 million of which 70 percent is Punjab. ⁷ Crop Loan Insurance Scheme.

WHEAT PROCUREMENT PROGRAM
CARRIES THE LARGEST SUBSIDY
BURDEN FOR THE PROVINCIAL
GOVERNMENT, ESTIMATED AT NEARLY

PKR 35
BILLION

The large subsidies in Punjab are mainly on account of wheat procurement, gas for fertilizer manufacturing, electricity for tube wells, agriculture credit and irrigation maintenance and repair (IMR).

The wheat procurement program carries the largest subsidy burden for the provincial government, estimated at nearly PKR 35 billion, and has several negative effects on the growth and performance of the agricultural sector. The wheat support price is above international levels, thus inducing more / surplus production than would otherwise be the case. These cause losses to the government more than the support program itself through added storage and handling costs. When sold at higher prices to local consumers than the cost of imported wheat flour, the extra production hurts both urban and rural consumers - including small farmers who are net wheat buyers as research shows that only 26% of wheat producers are net sellers, and these are mostly the larger farmers. This program additionally ties up land, fertilizer and water resources that could go to other products, including horticulture products with huge export

potential; and oilseed and pulses to reduce import burden.

The policy recommends reducing government wheat procurement only to maintain a security stock of 2 million tons of wheat at national level for emergencies. Free market forces should be allowed to determine the production and price of wheat and the Government should exit from wheat support price subsidy altogether. The Government may require importing wheat in case of shortage or excessive price increase in domestic market, and also encourage private sector investors in development of proper infrastructure for grain warehousing, so the farmers and value chain players can stock wheat and benefit from the seasonal variations in prices in the free market space to maximize their profits. Furthermore, Government can redirect some of these funds to improve yields of farmers through investment in technology and innovation in agriculture and promote good agronomic practices to make farmers competitive internationally and to ensure that wheat sector is developed in a more sustainable manner.

The fertilizer gas subsidy goes to manufacturers of fertilizer and so gross amounts are not indicative of the actual benefit to agriculture in the province Punjab. A substantial share of fertilizer subsidy benefits fertilizer companies, and it has also promoted unbalanced use of fertilizers. The electricity subsidy on tube wells, which is the second

largest Federal payment and is a direct benefit to farmers, however benefits only few farmers as approximately 80% of the tube wells in Punjab run on diesel engines and therefore no benefit from the electricity subsidy goes to the majority of the farmers.

The policy recommends unproductive and inefficient subsidies in agriculture to be phased out, the productive ones should be better targeted so that small commercial farmers are the direct beneficiaries of the subsidy money through cash transfers, and Government's funds are utilized optimally with full benefits reaching to the intended beneficiaries. At present, many of these subsidies benefit larger farmers, so at least this should be an explicit choice if that is the purpose for such programs. Better uses for these scarce funds surely exist. Policy therefore, recommends to diverting funds to high priority areas including agriculture research and technology for sustainable increase in yields; promotion of high value and climate smart agriculture; and incentives for private sector in development of efficient agriculture produce markets and agro-processing businesses etc.

Furthermore, policy recommends that subsidies are used as tool to encourage positive behavior shift among farmers leading to sustainable structural changes in agriculture of Punjab. Subsidies are used as catalyst-for-change by incentivizing adoption of best agronomic practices; promote use of better production technologies; encourage climate smart agriculture; and support shift in

crop mix. This should be enabled through proper programming and use of technology in disbursement of targeted and outcome oriented subsidies.



DIRECT-TO-FARMER TRANSFERS OF SUBSIDIES

The technology-based subsidy disbursements include the eVoucher subsidy, where cash is transferred directly to the farmers' mobile banking account within 6 seconds of a farmer sending scratch code through a mobile phone to an automated / digitalized system. The vouchers with hidden scratch codes are placed in bags of fertilizers and packets of certified seeds etc. Farmer retrieves and enters the scratch code in mobile phone and withdraws subsidy cash from a wide network of mobile banking retail outlets spread across Punjab. This system has been piloted on fertilizers (Potash and DAP) and certified seed (Canola and Sunflower) with success and is recommended for scale up at the provincial level for efficient, targeted and direct-to-farmer disbursements of subsidies. These subsidies have promoted balance use of fertilizers – the sale of potash fertilizer has increased by 84%, and area under cultivation of oilseed crops has increased by roughly 115,000 acres, with

productivity increase of 73% in a single crop season. This is quite encouraging considering the shortages of oilseed are covered through imports, which can be substituted with local production by encouraging farmers through targeted subsidies.

The issuance of Kissan Card is the second phase in technology-based subsidy disbursement mechanisms being developed in the Agriculture Department. This policy stipulates piloting in the first half of 2019. The Kissan Card is proposed to be issued to the farmers; and subsidy money transferred in the digital bank accounts linked with the Kissan Card. It will give added convenience to the farmers as Kissan Cards may be used as ATMs or debit / credit card at the point of purchase. The Kissan Card will be linked with the interest free eCredit scheme and enable farmers to purchase inputs using the credit lines. A key development with Kissan Card is that the directly transferred of subsidies will also be extended on diesel, farm mechanization services, private extension services etc., i.e. on goods and services where placement of a physical eVoucher is not possible.

The Kissan Card will also be used by the farmers as a discount card for purchase of selected input supplies including diesel and farm mechanization services. The Kissan Card will be presented to the

pump operators or mechanization service providers, who then will give diesel or render farm mechanization services to farmers on discounted / subsidized price and the subsidy money will be transferred directly to the pump operator's or service provider's digital bank accounts through an automated system. The GPS enabled devices with fully integrated tracking systems will be attached with the tractors / farm implements to verify and validate that mechanization services are being truly provided to targeted farmers before the subsidy is transferred to service provider's account.

The eVoucher and Kissan Card systems are integrated with the Punjab Land Revenue Authority (PLRA) and National Database and Registration Authority (NADRA) to ensure that subsidies are available only to the targeted farmers groups – segregated by farm size, geography, age, gender etc. and through a machine-based system so it is fair and cannot be misused. The information related to dissemination of subsidies will be available on the portal with secured backup provision for 100% transparency and traceability. The available information can also be used for monitoring, evaluation and impact assessments of the subsidy programs, which can be followed by adjustments and improvements in the subsidy schemes by evidence-based policy planning measures.

Some of the planned uses for technology-based subsidy are as follows:

- Provision of subsidy on purchase of fertilizers, especially on Phosphorous and Potash fertilizers so that the balance application of fertilizers can be promoted in agriculture and small commercial farmers are benefited by bringing their cost of production down and yields are improved.
- Provision of subsidy on purchase of diesel so irrigation and cultivation expenses of small commercial farmers are reduced, and they become more profitable and competitive. The subsidy on diesel will be targeted to ensure it only reaches the intended beneficiaries through the Kissan Card.
- Provision of subsidy on purchase of certified seeds to oilseed, pulses and horticulture farmers to encourage change in crop mix and promote use of certified seeds. The subsidy should be bundled with extension and advisory services to support farmers' transition from conventional/major crops to high value crops.
- Provision of subsidy on purchase of good quality cotton seed varieties those are proven to have good germination rate, better resistance for pest attack,

higher yields and produce better quality of cotton. The objective of this subsidy is to increase farmers' profit in cotton cultivation, encourage use of good quality seed and increase cotton production in Punjab.

- Provision of subsidy on rental charges of farm mechanization services, including for laser land levelling, tillage, inter-cropping, mechanical spraying and seed bed preparation etc. The objective is to increase yield by encouraging usage of proven but less popular farm mechanization technologies among farmers.
- Provision of subsidy on soil conditioners such as Gypsum to regenerate and recover quality of soil, leading to better yields of crops



EASY CREDIT FOR FARMERS

The linkage between formal financial sector and farmers ranged between poor to completely absent depending on farm size and education level of the farmer, among few other factors. Especially the small farmers could not get the bank loan due to a variety of reason such as challenges in collateralization of agriculture

land, other difficult banking documentations and lengthy procedural requirements. In absence of formal lending, the farmers rely on informal sources of credit, which mostly means getting loan from arthi (commission agent). Loans from arthi bounds farmers to less than fair terms and conditions and often farmers suffer to the hands of the arthi at the time of sale of their produce and ends up earning unfair and low margins. As a result, these small farmers had to bear the financial burden of agriculture production, thus trapping them in a perpetual cycle of poverty due to low margins and limited income.

Agriculture Department has developed a digitalized solution for provision of easy credit or eCredit to the farmers through use of technology, where most of the complexed functions including the collateralization of agriculture land and other lending procedure of banks are automated and integrated with PLRA and NADRA databases to provide bank loan to farmers in few easy steps. Over 430,000 loans are disbursed of over PKR 31 billion by five partner banks in last four crop cycles. All of the loans are given to farmers having landholding of less than 12

acres for Rabi and Kharif crops, including some to the landless farmers on personal guarantees. The targeted farmers group of 12 acres or less landholding, despite being largest in number in the province, has never received formal credit from banks in past. It is a breakthrough that eCredit has enabled formal lending for this group of farmers. All eCredit loans are disbursed through mobile banking channel for ease of farmers and the interest has been subsidized by the Government to encourage farmers towards formal lending sector.

The policy recommends expansion in the eCredit through increase in outreach to farmers by adding new banks to the system; new crop loan products are introduced, especially for the horticulture, oilseeds and pulses categories to encourage shift in crop mix; and new farmers groups such as 12-25 acres landholding and 25-75 acres landholding are added to eCredit scheme to support a broad-based growth in the agriculture sector. Similarly, loans for purchase of farm machinery and postharvest storage of produce (linked to grain warehouse receipt model) can also be introduced in following years. The subsidy on loan interest should be continued so farmers are encouraged for borrowing from formal lending sector, instead of arthi and this cultural shift in

their borrowing behavior becomes a norm. The subsidy of loan can be phased out once the behavior shift is permanent.

The Connected Agriculture Platform Punjab (CAPP) is a digital information and advisory platform linked with the eCredit scheme, which through a range of smartphone apps provides easy to understand information and advisory to eCredit farmers. The CAPP apps include real-time weather updates, pesticide warnings, best crop practices (articles and videos), subject matter expert's advice etc. to name a few. The policy recommends expansion in scope and quality of CAPP programs to cover for shortage in physical extension services through the digital platforms. CAPP will continue to gain importance as new farmers enter eCredit scheme; with adoption of smartphone technology among farmers – that is already at rise; and with expansion in scope and quality of CAPP apps to make the platform more meaningful for farmers.

A major strength of the eCredit scheme is that it leverages private sector capabilities in provision of financial services to farmers, the Government can decide to exist from the scheme

once it has matured and the scheme will continue to function independently without additional support. However, in order to reach the point of maturity, the Government needs to sustain eCredit through its infancy and invest resources in expansion of the scheme at the same time. One of the issue with eCredit scheme is that it does not have a regular institutional arrangement in the Agriculture Department, making it challenging to sustain and scale up due to managerial time / resource scarcity. The policy recommends addressing this through establishment of a Financial Services Unit (FSU) in the Agriculture Department, recruited with professional staff and subject experts. The FSU can manage and expand eCredit and CAPP along with other subsidy schemes being run under eVoucher and Kissan Card.



STRENGTHEN AGRICULTURE INNOVATION AND RESEARCH

Performance of the public and private sector innovation and research system is central to creation of a dynamic agricultural system that addresses issues of hunger and poverty. Punjab's public spending on agricultural research and development as a percentage of agricultural GDP, however is the lowest in South Asia i.e. 0.2% of the agriculture GDP against the 0.5% average for Asia, and 2.5% in developed countries. Research produced thus far has also been of a varied quality, with research priorities being mostly supply-driven, based on skills of researchers and not market demand. There is little prioritization of emerging issues, weak research-extension-farmer linkages, and limited monitoring and evaluation of research quality and impact. There has been little incentive for researchers to improve output, as promotions, salaries and benefits are linked to research publications in impact factor journals, without consideration of its economic contribution and impact.

Policy reviews have underlined, lack of incentives for scientists to undertake economically viable and commercial scale research, excessive bureaucracy, limited cooperation between universities and research institutes and lack of an effective liaison with agricultural extension as major concerns.

"Semi-autonomous research organizations" are the answer to the problems that our research organizations face, it is concluded. Pakistan Agricultural Research Council (PARC) at the federal level and the Punjab Agricultural Research Board (PARB) at the province level, were established, followed by several rounds of reforms of PARB. Yet many issues found in earlier reviews still persist.

To address these issues, the policy presents initiatives to take the PARB system forward, which looks at ways to reflect value chain perspective and becomes more receptive to farmers demands. Since the beginning, PARB has been created not to conduct its own research, but to "plan, facilitate and coordinate" result oriented in agriculture and livestock systems. It also plays a role in capacity building of the system, by facilitating professional activities and scientists' participation. If it works correctly, PARB should be able to provide significant coordination of research work and help identify priorities for the major efforts seen by the government and stakeholders. All research-oriented funds therefore should be routed through PARB,

and a further restructuring and re-design must take place to revamp PARB.

Another major challenge is to shift from supply-driven to demand driven research. This can partly be done by PARB through its allocation of funds, but it does not have the expertise to determine where the greatest opportunities lie, given the many crop and livestock commodities that are subjects of research. Therefore, it needs an associated technical structure to help set priorities and monitor progress on these to determine human resource and funding needs, when considering those priorities. A good starting point for the intermediate term is the Commodity Research Boards constituted in Ayyub Agriculture Research Institute (AARI), which can be expanded to have a greater role in governance, priority setting, and be made more independent. Recent appointment of experienced farmers, processors and exporters from the private sector to the Commodities Research Boards is a step toward engaging stakeholders in setting the research agenda, however their ability to influence R&D has been under question and they are unlikely to succeed unless the Boards are empowered to implement research priorities, monitor performance and progress in R&D.

The policy also recommends to aggregate successful projects into larger programs. This would be the first step towards strengthening

the disciplinary institutes/ departments, and progressively making more of the research scientists' time contracted under explicit programs. These projects would also give incentives to the scientists and project managers. Quality output in a reasonable time frame would be expected. Ultimately a complete review of the system, its human resource base and cadre, incentive structure, and the overlaps and gaps is necessary. The roles of Agriculture Directorate Generals of Extension and Adaptive Research, PARB, and AARI may be re-examined and reformed to rationalize their mandate, authority, funding, as would a reframing of the PARB law accordingly and to remove duplications.

In the short term, the research system can examine short run productivity growth prospects based on 'catch-up' growth by the small commercial farmers, for which increased and balanced input use, and better use of timely information, are central. For continued growth in the medium term, the size and productivity of the agricultural research system, and its full integration with an upgraded extension system, with complementary private sector involvement, is critical. The policy recommends improving the relevance, efficiency, quality, and effectiveness of the technological and innovation system of agriculture, offering

proper incentives and regulatory framework to all actors and institutes for technology and innovation in the system and proposing following principles for reforms in agriculture innovation and research:

- Gradually increase investment in research to 0.4% of agriculture GDP, so it is at par with other countries in the region.
- Keep the funders separate from service provider and significantly improve capacity of PARB through recruitment of professional managers, reconstitution of board and reframing of PARB's law.
- Transform the agri-technology and innovation system to demand driven priorities, with increased participation of private sector stakeholders from the agriculture value-chains in setting the research priorities and monitoring of performance.
- Emphasize product diversification, quality and value chain and embrace a wider range of clients beyond farmers, the research should

stretch beyond seed variety development and must increase emphasis on farm mechanization, post-harvest technologies, and climate smart agriculture as well.

- Create a result-oriented culture where results are not just completing experiments or meeting stakeholders but are assessed by impacts on stakeholders in measured parameters, with increase autonomy to institutes and scientists.
- Provide appropriate service rules for scientists, so their rewards and promotions are linked to the research outcomes and impacts.
- Foster wider concepts and approaches for capacity building of scientists.
- Implement an appropriate policy and regulatory framework to encourage private sector participation, collaboration, and investment in agriculture innovation and research.
- Develop methods for effective commercialization of research and incentivize SMEs in agriculture technology sectors so they are capable to mainstream innovation in Punjab's agriculture.
- Improve management and monitoring of research through ICT enabled research management systems



REFORMS IN SEED SECTOR LAW AND REGULATIONS

The seeds sector is governed by a complex set of regulations and multiple entities are mandated under the Seed Act of 1976 to perform regulatory functions. The Federal Seed Certification and Registration Department (FSC&RD) is an attached department of Federal Ministry of Food Security and Research. FSC&RD approves new varieties, conduct varietal testing, registration and certification throughout the country. In Punjab, Ayyub Agriculture Research Institute (AARI) and Punjab Seed Corporation (PSC) are delegated by FSC&RD to approve new seed varieties. AARI and PSC also produce seed for certification, they are competitors to private companies and therefore have conflict of interest in varietal testing. The varietal testing system is unable to enforce intellectual property rights, mainly due to slow and taxing registration process and leakages of breeder's seed during the testing process due to poor controls. This has discouraged private sector from R&D on seeds.

The availability of good quality seed is critical for agriculture's growth. Existence of a thriving seed sector that caters to the volumes and quality requirements is imperative for the competitiveness in agriculture. The seed companies exist in public as well as private sector including some multinational seed companies. The seed sector may be segregated in two broad categories, based on size, nature of operations, technical and research management capabilities: i) There are a few seed companies in public sectors and some in private sector, including the multinationals and large size local organization, which have developed extensive experience and capabilities in research and development of new seed varieties. ii) The majority of private small companies in Punjab, operating formally and informally, have a range of capacities in seed multiplication and distribution of seed, but do not have capacity to develop new seed varieties. Whereas, both these categories are important to ensure the availability of good seed and on competitive prices to the farmers, it is essential that a regulatory regime appropriate to their respective business models and operations allows a conducive environment for them to operate without excessive regulatory burden on them.

The policy proposes to permit companies, those have passed regulatory sieve, to sell their seeds under truth in labelling regime. Under the truth in labelling the obligation to maintain seed quality will be shifted to private companies to develop and test varieties and self-report their characteristics on label. The claims on label will be checked by regulator and fines and other sanctions can be imposed for false claims. The quality controls will be carried out at the point of sale for companies operating under truth in labeling. It is recognized that the current status of the seed industry has not evolved to a point that can be fully run by truth in labelling and therefore seed variety certification would still be available, but as a paid-for service, which companies can avail if they so choose. The variety certification will be voluntary choice of the seed companies.

It is recommended that overall regulation of the seed sector remains with the Federal Government, and the institutional capacities are built for effective nationwide regulations of seed. However, this policy advocates a provincial role in implementation of the

regulatory function, such as collection of sample from point of sale, testing of samples, registration of seed dealers, training, etc. In order to improve seed quality, the regulator will develop benchmarks to determine whether a company has facilities and the capacity to undertake development of new varieties, and whether they can maintain and protect intellectual property and seed characteristics sufficiently during ongoing multiplication and sales of its branded seed. Companies that meet such standards may possibly be allowed to release their new varieties with minimum pre-release evaluation. FSC&RD, in such cases, will carry out rigorous post-release testing of new varieties to ensure that they meet the prescribed standards. Public sector institutes and/or seed companies not yet meeting the benchmarks for minimal pre-release evaluation may commercialize their new varieties only after extensive pre-release trials. This policy also proposes to restrict regulation to a small set of commercially important crops. This will allow regulatory oversight to focus on this small set of strategically important crops.

There are scores of fly-by-night operations, ostensibly registered as seed companies but in reality, without any robust breeding or seed multiplication and testing systems, that also provide seed in brown bags. Quality of such seed is often suspect. Effective and stringent regulatory control of such operations is required. FSC&RD must proactively regulate seed sector to ensure that only those companies that meet pre-specified standards are allowed to provide seed to farmers. The long run goal will be to support the development of a seed industry that is mainly private sector driven, and internationally competitive, but with an effective public sector that can deliver products not profitable for the private sector, because for instance, they are open-pollinated or lead to lower cost alternatives. The capacities of AARI and PSC can be developed to play the role in the public sector to ensure the development and availability of seed varieties, including those which are not profitable for the private sector.



IMPROVE FARMERS' ACCESS TO INFORMATION AND ADVISORY SERVICES

The inadequate access to technical knowledge and information regarding advanced agricultural practices and technologies at the farm level is a major cause of low crop yields, profitability and lack of diversification. It is the role of agriculture extension (public and private) to provide the required knowledge and technical skills to farmers. In Punjab, the public sector has been the main source of formal agricultural advice; however, many farmers also consult input sellers, fellow farmers, arthis, faculty members of agriculture academic institutions, and private entities for extension advice.

Over the past seven decades, several models have been tried in Punjab, either as standalone strategies or as part of community/village development plans. The widely used traditional extension model, the training and visit model, and the current - village-level extension field schools have

produced mixed results, primarily as reflected in the growth of productivity. The approaches are often top down and supply driven and rely on individual extension agents. Instead of specializing, this agent needs to cover a very large region, with no prospect for specialization and little incentive to improve skills. This issue was exacerbated by the devolution of agents to local governments for many years. Also, there is poor coordination between extension and research, and the regional coverage of the total extension system is small – barely 20% of the requirement.

The heart of an extension system is its human resources, but in addition to small numbers relative to demand for its services, most field assistants are hired at low grades without much specialized training or advanced degrees. In addition, the Directorate does not have a systematic plan for updating its human resource base. The policy proposes that the Directorate focus on a building a medium-term plan to replace staff with those having higher degrees when openings occurs due to retirements, and to make a significant proportion come from outside hires. Part of this plan would provide current staff with opportunities to obtain advanced degrees. In the end, this human resource plan should lead to a smaller staff, but with greater specialization and more

education, and have agents with the capacity to make better use of ICT approaches and benefit from training programs. The training of extension staff will be fundamental to the plan, which can also be linked to their career progression.

The ambitious 5-year Project ‘Extension Services 2.0 – Farmer Facilitation through Modernized Extension’ was launched in 2015 with a total projected cost of PKR 4.85 billion, which aimed to conduct soil testing in the entire province, so that the extension advice can be made more precise. Soil samples are to be collected from each 10-acre block and tested in laboratories operated by the Directorate of Soil Fertility in the Punjab Agriculture Department. The project involves provision of vehicles to Agriculture Officers and motor cycles to Field Assistants to increase mobility and the setting up of helplines to respond to farmers’ queries. Soil fertility is only one of the many variables that determine how the crop is to be handled. Other variables, such as water availability, pest pressure, temperature, etc. are equally, if not more, important. The policy proposes timely execution of the Extension 2.0, and the scope to include other variables in provision of diagnostic based information and advisory services to farmers.

While the use of ICT has been limited and emphasized a simple communication of messages in the past, but recently the Department in partnership with a private sector mobile service company has launched the Connected Agricultural Platform Punjab (CAPP). It is a digital information and advisory platform linked with the eCredit scheme, which through a range of smartphone apps provides easy to understand information and advisory to eCredit farmers. This policy recommends further development of CAPP apps and to populate it with good quality content so more meaningful support is provided to the farmers through digital platform. It further recommended to open CAPP to all farmers of Punjab and not limit it only for eCredit farmers so the benefit of the program is widespread.



EMPOWERING RURAL WOMEN FOR INCLUSIVE GROWTH

Punjab has a population of 110 million, out of which 54 million are women with 35 million of them in rural Punjab. Poverty is heavily concentrated among the landless and small farmers with landholding of less than 3 acres, which is 78% of the total rural population in Punjab and

accounting for an estimated 27 million of the rural women. Unfortunately, large populations of rural women do not skillfully contribute in commercial and economic activities and are unaccounted for in national statistics for their participation. This results in an increased poverty ratio along with an increasing ratio of stunting in rural children in Punjab. The poor rural women can play a vital role in uplifting the economic conditions of their families, if guided in the right direction. They can also contribute in GDP growth by participating in economic and income generating activities.

With commercial activities being restricted due to the social and cultural context of rural communities, rural women work within their homes, or in the nearby fields. Such mobility constraints reduce work and skill development opportunities for them. Opportunities are thus, required to reach them closer to their homes to be relevant and effective. The focus of gender-based interventions of the Agriculture Department in the near future is then economic empowerment of

rural women in Punjab by developing institutional capacity of female extension workers in the field in general to train rural women in vegetable production technologies; kitchen gardening; development of cottage industry at domestic level; and entrepreneurship in particular. The trainings will be customized to needs of rural women based on production and market opportunities in different regions of Punjab.

In this way, rural women will become better empowered to make informed decisions regarding nutrition intake for their children and budgeting of kitchen expenses. In order to implement this, institutional capacities can be enhanced by training female extension workers of the Agriculture Department as trainers, to approach rural women at the village level for skills development in horticulture farming, cottage level value addition and entrepreneurship; and provide them with the relevant knowledge and tools.



INDUCING MECHANIZATION IN AGRICULTURE FOR GROWTH AND EMPLOYMENT

Slow adoption rate for mechanization technology has been a key reason for low yields and inefficiencies in agriculture, resulting in lower profit for farmers. The farm mechanization has been limited to few basic tools being used for land preparation and outdated models of combined harvesters used in harvesting of grain crops. Infusion of right mechanization technology will be crucial for the productivity increase and growth in agriculture of Punjab. The agriculture mechanization sector suffers from market failures at all steps in the chain, with insufficient R&D; poor capacities among private SMEs in implements manufacturing; under resourced farm mechanization service sector; and low technology adoption among the farmers. The policy recommends a value chain development approach, where suitable interventions across the value chain are being suggested to improve farm mechanization in agriculture of Punjab.

It is the private sector that has to lead the commercialization of farm mechanization technology and ensure availability of



EMPOWERING WOMEN FOR INCLUSIVE GROWTH AND FOOD SECURITY

Most of the work carried out by women in agriculture is unpaid and considered informal, and is thus not accounted for. Even where women are paid, their wages are about 50% less than their male counterparts¹¹. Available survey results indicate that in Punjab, like other provinces in Pakistan, women are less likely to own income-generating assets such as land, agricultural equipment, or livestock, or have a say in the household's production and other decisions. Not only are women underprivileged overall, but female headed households, at about 5% of farm households, are found to be the most food insecure and impoverished¹². Recognizing that a more empowered female labor force could raise agriculture production exponentially and favorably impact the food security and nutrition status of children, strengthening and formalizing the engagement of women in agriculture is critical.

The challenges to raising the status and contribution of women in agriculture is immense, given the informal and unpaid nature of their situations. However, several important dimensions that can change the position of women in the households can be affected by programs developed in this Policy. Two of the most important are whether women control an income source and if they are educated. The latter is longer run, and outside the control of Agriculture Development, but role models can be developed by adding female extension agents, who can give some training and skills development opportunities to rural women and promote their potential by engaging in awareness campaigns.

Women make up **40%** of
the labor force in agriculture in
Punjab¹⁰

¹⁰ Based on data from Pakistan Labor-force Survey 2013-14

¹¹ Based on data from Household Integrated Economic Survey (HIES) 2015-16.

¹² Based on data from Household Integrated Economic Survey (HIES) 2013-14.



EMPOWERING WOMEN FOR INCLUSIVE GROWTH AND FOOD SECURITY



Carry out Training Needs Assessment (TNA) of rural women considering the local cropping patterns, employment opportunities at local farms and entrepreneurial opportunities in cottage level value addition / food processing in the regions of Punjab. The assessment will be based on demand-supply analysis of labor market and cottage level food processing opportunities, mapped at least at district level.



Female extension workers employed by the Department of Agriculture are an excellent vehicle for the extended outreach of the Department to the rural women for provision of trainings, capacity and skill development services at their doorsteps. After understanding field related capacities and constraints of female extension workers through research, a comprehensive strategy for effective mobilization of female extension workers in capacity and skills development of rural women, including but not limited to training requirements of female extension workers as trainers will be undertaken. The aim is to make efficient use of the female extension staff to reach out to the currently neglected female population of rural Punjab.



Based on a series of field research with farmers / growers, buyers and rural women to determine capacity development requirements, a comprehensive training material on customized training techniques for female extension workers; and general training material on seasonal vegetable production and other skills enhancement etc. for rural women will be developed for different regions of Punjab. The material will be presented in the form of written brochures, manuals, presentations and short videos for brief descriptions to rural women, keeping in mind language barriers; and social and cultural norms of the rural women.



The female extension workers will be trained and mobilized in selected districts of Punjab to provide village level trainings to the rural women in horticulture farming, cottage level food processing, and entrepreneurship. They will also be linked to the input suppliers and output markets.



A team of M&E experts will monitor various batches of rural women trained through this program to draw from learnings and present recommendations for improvement in the program.



The program will be adjusted and refined based on learnings and will be expanded in other districts, gradually covering entire Punjab in five years, and more recourses will be deployed based on extended needs of the program.

farm tools and services to the farmers. The Government's role as enabler, facilitators and catalyst in development of private sector is also being recognized in the Policy. A strengthened Agriculture Mechanization Research Institute (AMRI) can play a constructive role in R&D of mechanization technologies by being responsive to market demands and development needs of the agriculture sector. The policy recommends to significantly increase the institutional capacities at AMRI and support it with increase in spending for R&D on farm mechanization. A private sector-led governance structure with strong monitoring and impact-based performance management of AMRI is recommended to ensure value for money.

The capacities of private sector manufacturers of farm implements can be improved through provision of matching grants under AIDE Fund, which should lead to availability of good quality tools and implements at lower price. The matching grants will be offered in

technology transfer and technical assistance to improve performance of the farm implement manufacturers. The bank loans through eCredits scheme can be offered on purchase of farm implements to the registered mechanization service providers, with special consideration for rural youth. The mechanization services are common in Punjab but due to resource constraints the pool of implements available with the service providers are limited to few and only the popular / routine ones. The availability of interest free loans for mechanization service providers will ensure supply of wide-ranging mechanization services to farmers.

The demand for mechanization service can be promoted by offering direct-to-farmers subsidy on rental charges through Kissan Card. The subsidy will be directed to mainstream proven but less popular mechanization

technologies among the farmers, which will accelerate adoption rate and serve as a catalyst for change in the agriculture practices. The support across mechanization value chain will lead to sustainable shift in the agriculture of Punjab leading to all round efficiencies and productivity increase. The subsidy will be phased out or redirected once the objectives are achieved. In addition to increase in productivity and profits for farmers, these investments will reduce poverty and tackle unemployment by creating new entrepreneurship and employment opportunities for rural youth in farm mechanization and allied service sectors.

ENCOURAGE CHANGE IN CROP-MIX

Pakistan's horticulture exports have been stagnant for the last several years. Primarily targeted to lower end of ethnic market segments of neighboring Gulf States and Afghanistan, fetching very low prices as compared to its competitors. Its competitive position is eroded due to improved capabilities of other producing countries. The situation is further compounded due to market access limitations in view of lack of ability of Pakistani horticulture exporters to meet with compliance requirements of the importing countries, particularly Sanitary and Phytosanitary (SPS) requirements.

On the domestic market front, horticulture price variability is high in the urban areas of Punjab. Erratic prices are attributed to periods of extreme shortage at one end and market glut (over supply) resulting in consumer hue and

cry at other. The implications for the horticulture production and marketing system and its participants are huge. Farmers continue to face challenges of high risk and low productivity. Consumers are faced with periods of high price and constrained availability and uncertainty of supplies prevent growth and result in low profitability of the processing industry. As a result, horticulture production and supply chain is struck in a vicious cycle, unable to grow despite availability of natural and human resources.

Although Punjab's agro-climatic conditions provide a suitable environment for the production of fruits and vegetables, providing a comparative advantage, yet, the horticulture value chain competitive position is weak due to several supply side constraints and weaknesses including: (1) low yields due to limited genetic

potential of horticulture varieties and poor farm management practices, (2) primitive produce handling practices resulting in inconsistent product quality and (3) weak direct linkages among growers and exporters resulting in uncertainty, high price fluctuations and low trust levels in the chain. Incidentally, low profits for growers are further affecting production and quality as the market does not offer sufficient reward for quality product. In order to enable sustained growth in horticulture production, it is imperative to synchronize any supply side support interventions with a market demand-based system.

As the existing market system does not offer enough incentive to growers to put additional work for improving product quality. A disconnect in the chain exists as growers think that premium

offered on better quality is not enough to reward extra efforts and compensate for additional costs incurred by them. The lack of direct demand from processors and exporters, due to limited value-added activities for horticulture in the Province, the commission agents and brokers dominates the market. The profitability of the intermediaries like commission agents and brokers do not depend on product quality as compared to the prevailing supply-demand situation they do not usually offer sufficient incentives for better quality.

The current situation is attributed to a number of constraints affecting competitiveness of the horticulture produced in Punjab. An appraisal of constraints analysis informs the following needs of the fruit and vegetable sector to enhance competitiveness:

- Knowledge/information needs
- Inputs related needs
- Market related needs

Despite significant efforts and investment by the government of Punjab and development partners, results have eluded, attributed to a piece meal approach and in-effectiveness of the implementation strategy led by the public-sector institutions without participation of the stakeholders.



POLICY SHIFT IN DEVELOPMENT APPROACH

The agriculture policy recognizes need of a fundamental change in the development approach and

public policy to bring qualitative improvement in the horticulture sector competitiveness, wherein the private sector leads growth and the government assumes a role of facilitator and a regulator with minimum of regulations to ensure that a level playing field exists particularly for the marginalized actors in the chain. Instead of being a market participant for the provision of necessary inputs and services, it assumes a role of facilitator to enable an echo-system, wherein private sector players provide vital inputs and services through a market-based system. A competitive horticulture production system depends upon a vibrant seed/nursery sector, a competitive market of technical and extension service providers and vibrant private sector input markets necessitating:

<p>KNOWLEDGE/ INFORMATION NEEDS</p>	<p>Availability of accurate information for demand forecasting, availability of information and knowledge to support decision making at the farmers' end such as advice on crop, variety and advice on agronomy related best practices</p>
<p>INPUTS RELATED NEEDS</p>	<p>Timely availability and affordability of quality inputs, seeds/nurseries, fertilizers, irrigation water, plant protection chemicals</p>
<p>MARKET RELATED NEEDS</p>	<p>Market allowing purchase of produce at better margins, especially for premium quality</p>



**STRENGTHENING SEED PRODUCTION
(PARTICULARLY HYBRID SEEDS) THROUGH
ENCOURAGING JOINT VENTURES WITH LEADING
SEED COMPANIES OF THE WORLD**



**STRENGTHENING/DEVELOPMENT OF TECHNICAL
AND BUSINESS DEVELOPMENT SERVICE
PROVIDING ENTERPRISES**



**COMMERCIAL SERVICE PROVIDERS FOR FARM
DEVELOPMENT, FARM MANAGEMENT AND
AGRICULTURE PRODUCE LOGISTICS SERVICE
PROVIDERS**



**THIS IN TURN REQUIRES SEVERAL MEASURES
AND REFORMS WELL-COORDINATED AND WELL-
SYNCHRONIZED**

Simultaneously, it is imperative that the agriculture department undertakes legal and regulatory measures to enable business supporting environment for the businesses involved in the horticulture supply chains in Punjab. For instance, implementing a regime to protect plant breeders copy rights is necessary so that the desired R&D investments for hybrid seed development and production comes from the private sector, particularly investments from the world leading seed companies are catalyzed either directly or through joint ventures with Pakistani entrepreneurs/enterprises.

It is also imperative for the horticulture sector competitiveness that at farm level production related practices are significantly improved from the existing conventional one to technology-based agriculture practices in irrigation, fertigation, plant protection, harvesting and post harvesting domains. Also, that applied research conducted in the public sector supported research institutions and the public-sector universities, translates into knowledge that is available to farmers in their local languages through improved research-extension-farmer links. The quality and availability of extension advice therefore is a necessary enabler.



POLICY IMPLEMENTATION STRATEGY

Policy implementation strategy is therefore proposed in consideration of a critical factor to ensure success. It is imperative to put in place a stakeholders' led governance/management system in place. A representative group of stakeholders, spear-headed by horticulture value chain players should be deployed to enable facilitation and coordination needed for the improvement of value chains. The proposed

Agricultural output markets that function well do contribute significantly to the development of an agricultural sector:



AGGREGATE OUTPUT FROM
SMALL HOLDERS



FOSTER PRICE DISCOVERY
ACROSS TIME AND SPACE



INSURE QUALITY STANDARDS

mechanism would promote frequent interaction among the value chain participants to make them realize importance of collaboration amongst themselves. The facilitation mechanism should enhance level of trust among the value chain participants and should pave a way for better cooperation among them for mutual benefits.

The horticulture development groups or other such platform should serve functions of a dedicated horticulture value chain development entity. The stakeholders' own governance will fill in the critical gaps among the value chain players and government. Clusters of horticulture production will be facilitated through strengthening of producer associations at cluster level. The cluster associations will help organize producers, create synergies at the cluster level through organizing them, increasing cooperation for knowledge sharing, achieving economies of scale for use of technologies, procurement of inputs and sales of produce.

The cluster associations being an integral constituent of the development groups to vertically integrate them with

other actors in the value chain especially buyers and processors to achieve higher value for the produce lowering risk by reflecting market demand to them. The enabling role of the horticulture development groups will help integrate development interventions and resources for effective results. In order to enhance horticulture value chain competitiveness in the long run, several reforms interventions to either improve upon existing level of services or "removing" irritants that inhibit performance of value chain participants are imperative. For instance, setting up Punjab Agriculture Markets Regulatory Authority (PAMRA) and a set of policy initiatives are proposed to facilitate a more conducive wholesale market system, with ease in doing business for new entrants, including foreign investors and processing industries.

This policy proposes to adopt a private sector led strategy supplemented by an implementing mechanism in form of establishment of Punjab Horticulture Development Board (PbHDB) with professionally recruited staff, the Board shall take approach that

marks a significant shift from the traditional public-sector approach with reforms in the way the department is delivering extension services, managing development projects, and extending public-sector subsidies to the horticulture growers.

The HDGs will augment an implementation strategy that envisions management through a professional team having a blend of skills set necessary for socially mobilize stakeholders, project management skills to ensure timely and effective implementation of activities under various interventions. Inherent to the proposed strategy is that the project management team will draw upon technical and other resources available in the public-sector institutions and augment the same with experts to avail knowledge and expertise on technical aspects of horticulture production, processing and exports for the fruits and vegetable.

The similar approach will also applicable for promotion of oilseed, pulses and other crops to substitute imports and meet domestic demand through local cultivation.

CLIMATE SMART AND REGENERATIVE AGRICULTURE

Pakistan's total GHG emissions in 2015 were 405 million tons of carbon dioxide equivalent, an increase of 87% since 1987 (USAID 2012; Ministry of Climate Change 2016). Most of these emissions came from the industrial and agricultural sectors, with agriculture contributing 43% of total GHG emissions. The majority of GHG emissions in agriculture are from enteric fermentation in livestock, chemical fertilizers and manure, paddy rice cultivation, and soil disturbance through tillage. As a signatory to the Paris Climate Accord, Pakistan is pledged to reduce 20% of its projected emissions by 2030, and a significant share of Pakistan's pledged reduction may have to come from Punjab's agriculture sector.

Mitigating effects of agriculture on climate change by reducing GHG emissions can come from helping farmers adopt sustainable and climate-friendly

practices and techniques, or Climate Smart Agriculture (CSA), without sacrificing productivity. The major challenge posed to the agriculture sector is by shift in weather patterns: early onset of monsoon season, longer dry spells, erratic rainfall, increasing temperature, heavy rains, stronger typhoons and flooding has become common climate events in the recent decade. This shift has affected the crop productivity and the impact is likely to increase in years to come. The focused priorities CSA will be on the adaptation measures to increase Punjab agriculture's productivity, while protecting farmers against the detrimental impacts of climate change. With expected effects of up to PKR 1.05 trillion in lost income from a 5% annual decrease in agricultural productivity due to climate change, significant benefits can come from investing in adaptation strategies, and sizable expenditures are justified.

CSA policy for Ag department must be socially, culturally and politically appropriate, environment-friendly and economically feasible to promote and attain sustainable agriculture and ensure food and nutrition security of the population. The CSA policy must also aim to provide context and analysis for addressing agriculture in international climate negotiations to better inform climate negotiators and other stakeholders by identifying options and unpacking issues of interest. It must also seek to optimize the benefits and minimize the negative trade-offs across food security, agricultural development and climate change adaptation and mitigation.

The policy recommends four broad strategic areas of focus for CSA:

- Adaptation and building resilience by addressing vulnerability due to changes

in rainfall and temperature, extreme weather events and unsustainable land/water management and utilization;

- Mitigation of GHG's emissions from key and minor sources in the agriculture sector;
- Establishment of an enabling policy, legal and institutional framework for effective implementation of CSA; and
- Minimizing effects of underlying cross-cutting issues such as human resource capacity and finance which would potentially constrain realization of CSA objectives.

The CSA policy will be an integration of climate change adaptation and resilience within the mainframe of the agriculture policy actions and strategies. The CSA policy can only be effective when accurate, timely and reliable climate information is available for decisions of actors on crops value chains. It also involves improvement, modernization and maintenance of weather infrastructure; integration of scientific and indigenous technical knowledge and technical skills for weather data analysis, packaging, dissemination and use of early warning weather information along with implement strategies for early warning and response to climate change events.

Technology innovation, dissemination and adoption

along crops value chains demands R&D in crop varieties and efficient information and advisory for farmers and other players in agriculture value chains, with promotion of cropping patterns suitable for agro-ecological zones of Punjab. Agro-ecological zoning is done on basis of soil, landform and climatic characteristics, with zones categorized for constraints and potential in land-use, especially the identification of crop-mix suitable for the agro-ecological zones. Development of crop varieties that are adapted to varied weather conditions and tolerant to associated emerging pests and diseases is therefore essentially aligned, which also involves breeding crop varieties those are adapted to effects of climate change like flooding, drought, strong winds, hailstorms, heat waves and frost.

The primary focus of CSA in the Department has been on efficient water use with well functional and result oriented projects for water conservation being successfully implemented. This include projects for on-farm water course lining and installation of high efficiency irrigation systems for farmers on subsidies. The CSA also requires better resource allocation for water harvesting and storage; upgradation of irrigation infrastructure; and mainstreaming of crop production methods those are efficient in water use, to

obtain higher yields for per liter of water, especially focusing at mainstreaming production technologies for rice and sugarcane crops. Similarly, promoting energy efficient technologies in water pumping and irrigation will reduce the greenhouse gas emission and help in mitigation of climate change.

The sustainable natural resource management with adaptation interventions will also provide mitigation co-benefits. These interventions include promoting agroforestry/farm forestry, through encouraging inclusion of trees in the farming systems and development of rangelands. In addition, a Nationally Appropriate Mitigation Actions (NAMAs) can be developed and implemented to mainstream sustainable land management for agriculture. The use of fire in rangeland and cropland management should be minimized to limit emissions. Moreover, the Measurement, Reporting and Verification Systems (MRV) will help in improving the transparency in reporting of actions and mitigation measures in the agriculture sector. This will involve setting standards and installing MRV infrastructure and development of an inventory system data bank on sector's emissions. The integration of climate change into public financial management system is being proposed for accessing climate finance for CSA activities.

The policy proposes establishment of an Institute for Climate Smart Agriculture (ICSA), recruited with a pool of technical personnel (human resource) with expertise in CSA, to strengthen role in formulization and review of policies and regulations for CSA activities, establishing oversight and accountability systems and incentive mechanisms for promotion of CSA best practices according to the provisions of the Climate Change Act, 2016. A fundamental change in the development approach and policy is imperative to bring qualitative improvement in the agriculture sector through CSA. Capacities of Wings and Directorates for climate resilient agricultural practices and integration of climate change in public sector service delivery is required. This can be facilitated by building strategic partnerships with private sector, NGOs, CSOs and other development partners with provision of technical and financial support for CSA activities, programs and projects. All of this needs support of an integrated communication strategy for its internal and external stakeholders, including the private partners and farmers.



SAFETY NET FOR SMALL FARMERS THROUGH AREA YIELD INDEX INSURANCE

The insurance coverage to farmers in the 'Crop Loan Insurance Scheme' (CLIS) of the Federal Government insures against multiple risks including excessive rain, hail, frost, flood and drought etc. The premiums under CLIS are payable by the Federal Government through State Bank of Pakistan and the payment of claims is subject to declaration of calamity by the Government in the area where the insured risk is located and its notification in the Gazette. Further, the claim payment is also conditional to the final yield of subject risk being less than 50% of reference yield of that area, making the scope of CLIS limited, restrictive and ineffective in many ways.

Area Yield Index Insurance (AYII) of Government of Punjab is a safety net scheme for small / sustenance farmers against the yield loss from natural calamities and effects of climate change. The AYII is based on an effective and efficient mechanism, compared to CLIS, relying and leveraging on the private sector capacities in insurance services, and also playing the role of catalyst in introducing insurance among farmers in a manner that is sustainable and scalable. It simply links insurance with the average

yield at the tehsils, where the insurance payments are triggered, if the yield drops below 80% of past average (based on routine crop cutting experiments of Crop Reporting Services in Agriculture Department) without need for declaration of calamity and minimizes procedural hurdles. The crop yield insurance covers farmers with landholdings of up to 12.5 acres, where 100% premiums for the farmers having a landholding of 5 acres or less is paid by the Government of Punjab, and the cost of premium payments is shared on a 50-50% basis in case of landholding above 5 acres and up to 12.5 acres.

An initial pilot in four districts and with over 16000 farms insured under AYII is completed in Karif 2018, and now the scheme is being expanded into nine districts. At this stage, the insurance is linked with eCredit where only the farmers getting bank loans are being insured. The crops insured during the pilot were cotton and rice. The policy recommends expansion in the AYII by including all small farmers with less than 12 acres landholding in the scheme, and not only the eCredit loanee farmers. It policy also recommends to increase the number of crops insured by including minor crops as well, and finally expand AYII to entire Punjab in four years to provide safety net to small / subsistence farmers from potential yield losses caused by climate change and other calamities.

STRENGTHENING AND CAPACITY BUILDING OF INSTITUTIONS

The success of this agriculture policy requires institutional strengthening and capacity building of the human resource in the Department of Agriculture. Concerns about staff quality or human capital within the Department have been voiced many a times as relevant and state-of-the-art training of professionals in fact is a lifeline for the quality and delivery of services. The training for stakeholders along the value chain is also important to facilitate the adoption of new technologies and bring strong productivity growth to the sector. Therefore, an overarching Capacity Building Strategy (CBS) with a positive attitude towards training as an investment for the future is been recommended in the policy with the objective to build capacity of the staff and the stakeholders along the value chain for effective policy programming and implementation.



CAPACITY BUILDING OF HUMAN RESOURCE

- Consider training as an investment in the future for high-quality human resources
- Build capacity rather than just share knowledge
- Involve ultimate beneficiaries or stakeholders in the identification of training needs as well as its development and evaluation
- Cover a wider range of skills to be trained as per identified needs of the stakeholders
- Coordinate with other training providers in the area such as universities, Rural Support Program, Pakistan Poverty Alleviation Fund, TEVTA, etc.
- Efficiently harness foreign capacity building opportunities.
- Insist on a clear objective for each training course and define change pathways.
- Provide after training support to enhance the impact.
- Track the impact of training activities.

The steps proposed to implement CBS are as follows:

- Evaluate the training needs of staff and develop/update modules accordingly.
- Evaluate the impact of the existing training programs, identify constraints in low impacts, reform the strategy and functions of the existing in-service training institutes, and change their training programs accordingly.

- Conduct large-scale consultation with agricultural industry, farmers, and other stakeholders to assess their needs for professional staff and training.

A separate Directorate General of Training is being proposed in the policy, established with highly qualified training specialists performing the training functions. The state-of-the-art in-service Training Directorate for Agriculture Department will carry out both training-of- trainers so they can then train farmers, rural women, rural youth; and the training of departmental staff to support performance and service delivery. Upgrading the existing in-service training institutes especially their training staff and infrastructure facilities will be needed. The policy recommends that all nine training institutes of the Agriculture Department are brought under Training Directorate. The Directorate will consolidate training institutes scattered in different places of Punjab to conduct training needs identified under heads of Technical Trainings, Managerial Trainings and Behavioral Trainings.



IMPROVEMENT IN INSTITUTIONAL SYSTEMS

The policy recommends following initiatives to strengthen the institutional capacity in the Agriculture Department for effective policy implementation and improve quality and delivery of services to farmers and other stakeholders:

- Revamp PARB with recruitment of professional management team, restructured and empowered board and change in law governing PARB for improved functioning
- Strengthen private sector led Commodity Boards to ensure that they have a role in setting the demand based research agenda and monitoring of performance
- Introduction of ICT enabled Research Management System at AARI for better management and monitoring of R&D activities
- Autonomous Directorates and HoDs in Agriculture Department are empowered to take independent decisions, however with well-defined results-framework to ensure performance is delivered
- Centralized ICT based M&E and evidence based decision making for all Wings, Directorates and Institutes
- Implementation of ICT enabled Procurement Management Information System across the Agriculture Department for improved performance and transparency with timely implementation of programs and projects
- Implementation of ICT enabled Human Resource Management System for improved profiling and management of human capital in the Department and mapping of their capacities and training needs
- Strengthen Punjab Seed Corporation to operate with strong commercial orientation, supported by better ICT enabled Enterprise Resource Planning and Management systems



MONITORING AND EVALUATION

The overall effectiveness and success of this policy and its institutionalization depends upon planning, implementation and finally with an effective results-based monitoring and evaluation system learning and reorganization. An M&E system is recommended that generates timely and accurate data and evaluations about whether correct programs are being pursued and that they are being implemented efficiently. While the policy presents priority programs that are expected to have impacts, it is important to learn from experience and to review and revise all efforts for maximum effectiveness.

The agriculture policy proposes establishment of an integrated M&E system and development of an M&E policy, to define linkages of individual performance to outcomes and impacts. In

future, the promotions and capacity building activities of Department's staff can be linked to the performance evaluations of individuals. The M&E policy must also provide clear guidelines to the workforce about what is expected of them and what constitutes output, outcomes and impact. To make this system successful and efficient appropriate human and technological resources are being recommended to deploy throughout the Department for effective M&E.

SUSTAINABLE DEVELOPMENT GOALS

LINKAGE WITH SUSTAINABLE DEVELOPMENT GOALS

Pakistan is committed to the United Nation's Sustainable Development Goals (SDGs) requiring innovative, effective and efficient decision making and implementation encompassing all sectors of the economy as well as social sectors. For success, agriculture needs a special focus because of its contributions to food security, GDP, exports, employment and as a catalyst for reducing rural poverty. The Agriculture Policy of the Punjab will facilitate progress towards achieving SDGs 1, 2, 5, 6, 8, 13, 16, and 17.



SDG GOALS 1 AND 2: END POVERTY IN ALL ITS FORMS EVERYWHERE AND END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE

The agriculture policy envisages investment in agriculture research and extension services, diversification to high value agriculture and promotion of horticulture, as well as revamping and modernizing agriculture output markets leading to increase in farmers' income. The policy also proposes to target the small commercial farmers (SCF) for rapid growth, empowering women and engaging educated rural youth as catalysts of change. It also proposes to deal with farm land and water resource management to increase productivity and water efficiency, along with promoting climate resilient and nutrition sensitive agriculture. These policy actions will facilitate the province in its progress towards sustainable agriculture, improved nutrition and reduction in rural poverty.



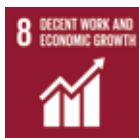
SDG GOAL 5. ACHIEVE GENDER EQUALITY AND EMPOWER ALL WOMEN AND GIRLS

The Policy, inter alia, also proposes to induct female extension agents to educate rural women in modern agriculture practices, including nutrition, and leverage their potential in farm level decision making. In addition, it suggests initiating special programs to encourage agriculture entrepreneurship and to enhance on-farm activities by empowering rural women, thereby achieving gender equality over time.



SDG GOAL 6. ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL

Given the water scarcity in the country, the policy also underlines the significance of effective water management, both for surface and underground water, shifts from flood agriculture to water efficient technologies, encouraging rain harvesting and water storage, discouraging water intensive crops and improving water pricing mechanisms, which should all lead towards the sustainable management of water. In addition, the Policy strongly recommends strong and effective coordination with flood control authorities for early warning and better preparedness to deal with natural disasters.



SDG GOAL 8. PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

These policy measures will lead to inclusive and sustainable economic growth as well as employment of rural women and youth to productive employment. The policy is expected to create an environment of decent work for all and help increase their incomes.



SDG GOAL 13. TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

Promotion of Climate Smart Agriculture through public and private investment and proposed establishment of an Institute for Climate Smart Agriculture (ICSA), with a mandate of evaluating, finding resources for, and promoting beneficial Climate Smart Agriculture technologies (those that increase food security and simultaneously promote mitigation or adaptation) are key features of the Policy.



SDG GOAL 16. PROMOTE STRONG, EFFECTIVE, ACCOUNTABLE & TRANSPARENT INSTITUTIONS


The policy underscores the need for investing in change management, revamping existing institutions and establishing some new institutions to support implementation of actions and to improve service delivery. A strong, robust and performance based accountability system at all levels through effective M&E will help in transforming the Agriculture sector.





SDG GOAL 17. DEVELOPING PARTNERSHIPS


The agriculture policy promotes partnership development between local stakeholders and international organizations in achieving the proposed objectives and goals. The partnership will focus on knowledge sharing, adapting modern technologies, financing and capacity building.




 **Secretary Agriculture, Government of Punjab,**
2 - Bank Road Lahore, Punjab, Pakistan.

 agripunjab@hotmail.com

 Agriculture Department Punjab

 www.agripunjab.gov.pk

 +92 42 99210499, 99210130