

Sindh Agriculture Policy (2018-2030)

Approved by Sindh Cabinet on 16th April, 2018



Agriculture, Supply & Prices Department,
Livestock & Fisheries Department,
Planing & Development Department,

Government of Sindh.

A consolidated publication by i). GoSindh’s Agriculture Supply & Prices Department, ii). Livestock & Fisheries Department and iii). Planning & Development Department. Which is approved by Provincial Cabinet of Sindh on 16th April, 2018. It articulates set of principles and high level objectives to guide decisions and achieve outcomes of sustainable agriculture management in the Sindh Province following the 18th Amendment. This effort is in response to the increasingly complex agricultural and rural development issues faced by the people of Sindh, Pakistan.

The Sindh Agriculture Policy complies with United Nation’s Sustainable Development Goals, in particular: **SDG#1 (ending poverty)**, **SDG#2 (improved nutrition and sustainable agriculture)**, **SDG#5 (gender equality)**, **SDG#6 (sustainable water management)**, **SDG#8 (economic growth and employment)** and **SDG#13 (combat climate change)**. The **SDG#14 (Life below Water)** & **SDG15 (Life on Land)** are also significantly linked.

Foot Note on Title: *This policy covers “agriculture” as defined by FAO – including crops, livestock, fisheries and forestry. The policy document does not cover irrigation which is addressed in the recently prepared Irrigation Strategy document.*

i) Planning & Development Department, ii) Agriculture, Supply & Prices Department & iii) Livestock & Fisheries Department of GoSindh, being custodians of their relevant sectors have the mandate for translation, clarification and implementation of this document.

CURRENCY EQUIVALENTS

Currency Unit = Pakistani Rupee (PKRs.)
US\$1.0 = PKRs. 115.55, Forex Inter Bank

FISCAL YEAR

July 1 -June 30

MEASURES AND EQUIVALENTS

1 meter = 3.28 feet
1 ha = 2.47 acres
1 km = 0.620 miles
1 cubic meter (m³) = 35.310 cubic feet
1 million acre foot (MAF) = 1.234 Billion cubic meter (Bm³)
1 cubic feet per second (cusec) = 28.5 liter per second (l/s)
0.0285 cubic meter per second (m³/s)

Abbreviations and Acronyms

ADP	-	Annual Development Programme
CNIC	-	Computerized National Identity Card
GDP	-	Gross Domestic Product
Ha	-	Hectare
HEIS	-	High Efficiency Irrigation System
ICT	-	Information & Communication Technologies
IFPRI	-	International Food Policy Research Institute
Katcha	-	Riverine Land
Km	-	Kilo Meters
MAF	-	Million Acre Feet
NGO	-	Non-Government Organization
NNS	-	National Nutrition Survey
PKR	-	Pakistan Rupees
R&D	-	Research & Development
Rs	-	Rupees
SAGP	-	Sindh Agricultural Growth Project
SDG	-	Sustainable Development Goal
SMS	-	Short Message Service
t/ha	-	Tons per Hectare
UN-	-	Food & Agriculture Organization of United Nations
US\$	-	United States Dollar
ZTB	-	Zarai Tarqayati Bank

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Foreword

Agriculture is one of the most important sectors of the economy significantly contributing in economic growth, food security and poverty reduction in the province of Sindh. After transfer of the federal portfolio of Agriculture to provinces in 2018, the need of having an Agriculture Policy to set principles for decision making was badly felt. During the planning of the Sindh Agricultural Growth Project, and after due discussions and deliberations, the World Bank and Government of Sindh agreed to have a component in the Sindh Agriculture Growth Project for formulation of a Sindh Agriculture Policy.

The effort has a significant weight with ownership of political leadership of the province. Mr. Sohail Anwar Sial, the Minister for Agriculture and Mr. Muhammad Ali Malkani, the Minister for Livestock led the process for formulation of Sindh Agriculture Policy and participated in a number of consultative meetings. We also owe special thanks to Syed Murad Ali Shah, our worthy Chief Minister, Sindh and the Sindh Cabinet for the opportunity to present, review and approve the Sindh Agriculture Policy (2018-2030).

In addition the Agriculture, Supply & Prices department is specifically thankful to Late Mir Hazar Khan Bijarani, the then Senior Minister for Planning & Development and Mr. Muhammad Waseem, Chairman P&D Board for guidance and overall support in the process. We are also thankful to Dr. Fateh Marri, Project Coordinator, PCU-SAGP, anchoring and hosting this activity, the Food & Agriculture Organization of United Nations, Pakistan for its consistent support as well as Sindh Abadgar Board, Sindh Chamber of Agriculture and the individuals involved in policy formulation and its approval from Sindh Cabinet.

The Agriculture Department is fully committed to the new Agriculture Policy and to the process of change and reform that it implies. A professional Change Management Unit in Planning & Development Department, with Delivery Units in both department of Agriculture and department of livestock will be soon in place for planning and implementation, of the policy under the oversight of the Sindh Agriculture Policy Implementation Commission (SAPIC).

Sajid Jamal Abro,
Secretary to GoSindh,
Agriculture, Supply & Prices Department.



Foreword

Livestock and fisheries are allied sectors of agriculture in the province of Sindh contributing about 56 percent of value addition in agriculture and nearly 11 percent to the gross domestic product (GDP) of Pakistan. Livestock production makes a major contribution to agriculture value added services.

The formulation of Sindh Agriculture Policy was the need of our time. The Livestock and Fisheries Department was closely involved with the Project Coordination Unit of SAGP, Planning & Development Department and with the Agriculture, Supply and Prices Department since the start of the Sindh Agriculture Policy formulation process. The livestock department ensured proper coverage of issues and challenges faced by this highly significant sector in Sindh Province.

Mr. Muhammad Ali Malkani, the Minister for Livestock and Fisheries guided the efforts to devise this policy and setting up principles. Without continuous support and encouragement of the political leadership, this huge task would not have been possible.

The policy implementation strategy is now underway in collaboration with the PCU-SAGP, P&D Department and the Agriculture Department. The Livestock and Fisheries Department will host delivery unit for due deliberations, advisory support and policy implementation. I am looking forward for improved Livestock and Fisheries Sector for the people of Sindh.

**Baqullah Unar,
Secretary to GoSindh,
Livestock & Fisheries Department.**



Acknowledgement

Following approval of the 18th Amendment of the constitution of Pakistan, agriculture became a complete responsibility for the Government of Sindh. There was requirement of agriculture policy document which sets principles and guidelines for decision making and monitoring the outcomes. The government under the able leadership at highest level was therefore eager to formulate a Sindh Agriculture Policy and Implementation Strategy. Sindh Agricultural Growth Project, financed by the World Bank, provided a window for policy formulation.

This is a comprehensive document which aims to reduce poverty, raise living standards of farmers, and solve the problem of food insecurity and malnutrition in the province. Project Steering Committee of Sindh Agricultural Growth Project under the chairmanship of Mr. Muhammad Waseem, Chairman P&D Board and Mr. Aijaz Ali Khan, the then Additional Chief Secretary (Dev.) directed the team for the task under the guidance of Technical Working Group (TWG) under the Chairmanship of Dr. A.Q. Mughal, former Vice Chancellor, Sindh Agriculture University, Tandojam, who led a group of twenty-five high-level government officers, representatives of civil society, and farmer association leaders. Mr. Daud Khan, former Deputy Director, UN-FAO Rome, served as principal author, applying his many years of experience and deep expertise to the subject matter. The outline was initiated which passed through a series of consultations and reviews by stakeholders and, finally evolved as a policy document. A detailed consultative process was used through the formation of a Technical Working Group

The sector-wise approach was taken by having Agriculture and Livestock & Fisheries working committees, led by, Mr. Muhammad Hashim Leghari, former Secretary of Agriculture Department and Dr. Baz Muhammad Junejo, former Secretary of Livestock Department. The reports of both committees were presented at the second meeting of Technical Working Group in March 2017 and recommendations were discussed for incorporation in the final document.

The participation of the Sindh Abadgar Board, the Sindh Chamber of Agriculture, farmer bodies', prominent livestock and fisheries producers' representatives was highly commendable. Furthermore, the thoughtful comments received from key development partners, particularly Food & Agriculture Organization of United Nations (UN-FAO), USAID, World Bank and IFPRI, which were valuable in refining the draft ready for its finalization in early 2018.

The policy process also benefited from a series of background studies conducted by i). Dr. Heman D. Lohano, on climate change and environmental aspects of the agriculture sector in Sindh; ii) Dr. Akhtar Abdul Hai, on rural poverty and gender aspects of agriculture in Sindh; and iii). Mr. Shahid Fazal, on malnutrition in Sindh and iv). Mr. Shahjahan Hashmani on value chains of major and minor crops in Sindh.

The ownership, contribution and support from the Agriculture, Supply & Prices Department and the Livestock and Fisheries Department was very helpful in completion of this huge task. The Ministers and Secretaries from both departments were involved with, and committed to the entire process. Without their efforts, this achievement would not have been possible. In addition, I would like to extend my gratitude towards the individuals who played a pivotal role in the consultation, drafting, finalization and approval of this policy. Their services will always be remembered for Sindh Province.

**Dr. Fateh M. Marri, Project Coordinator,
PCU, SAGP, P&D Department, GoSindh**

Executive Summary

Sindh is the second largest economy of Pakistan endowed with many characteristics of a high growth region including the potential of agriculture sector. It is a coastal province, strategically located between Europe and Far East, and close to Middle East with potential to become one of the largest logistical, trade and business, and human resource hub in the South Asia. The Government of Sindh through this policy wants to create an efficient, prosperous and resilient agriculture and livestock sectors that can provide good incomes and decent employment to those involved in production, processing, transport and storage; and at the same time provide safe, nutritious and cheap food to urban and rural populations.

The agriculture sector in Sindh, including livestock and fisheries, has not performed to its potential. Moreover, growth has mainly been the result of higher use of resources and inputs, rather than higher productivity. Low agriculture and livestock yields are also a principal cause of low incomes and high food prices, which make it difficult for the majority of Sindh's population to afford a nutritious diet.

The Province has a number of resource advantages, the principal ones being good soils for agriculture and grazing; available surface and underground water sources; 350 km of coastline suitable for fishing and aquaculture; a climate that allows production of a wide range of crops and their early harvest; and a hard-working labour force. However, these resources are under threat due to over application of water in some areas; overuse of groundwater; and focus on wheat and cotton rice rotation, with high use of fertilizers and pesticides. In the case of livestock, much of the dairy industry is located in urban and semi-urban areas where overcrowding of animals and poor effluent disposal are resulting in increased risk of disease outbreak and groundwater contamination. In a number of coastal areas, the resources are now overfished. Another threat is climate change with a likely increase in temperatures, increased risk of floods and droughts, and higher frequency and intensity of rainfall and winds. Lastly, the health of Sindh's population is under threat due to poor nutrition.

Following the 18th Amendment, the allocations of public expenditure for agriculture, including for livestock, fisheries and irrigation have risen substantially. The bulk of these funds are for the Department of Irrigation, followed by the Department of Agriculture (which covers crops), with significantly smaller amounts for the Department of Livestock and Fisheries. The impact of public spending is limited by actual expenditures lagging behind allocations; a high allocation to ongoing projects; the large recurrent, salary-related expenses, particularly in research and extension; and in the case of the Livestock Department for curative, as opposed to preventive, animal health services.

The government's vision through the policy and subsequent actions will be achieved by strengthening markets, including reforming laws and regulations that limit competition and market-driven decisions, and introducing effective or efficient pricing and subsidies. At the same time the Government will focus on producing and promoting public goods, in particular new technologies for processing, transport, storage and production, including new seed varieties and high yielding milk and meat animals; establishing a regulatory framework to ensure quality supplies of input and output; acting as a champion for the poor and deprived to raise their incomes and have access to an adequate diet; and addressing emerging issues such as resource degradation and climate change. A number of key objectives, aligned to the internationally agreed Sustainable Development Goals (SDGs), are set out below:

Raising Agricultural Growth. Efforts will be made to increase the agricultural sector growth to 4-5% per annum which is a necessary condition to raising incomes and reducing poverty and food insecurity; providing decent employment, particularly to the large numbers of youth entering the labour market; and facilitating a greater attention to sustainability. Future growth in agriculture, livestock and fisheries must come from improving efficiency and productivity. To achieve this, the sector will generate savings, attract the necessary investment, make technological innovations in production including breeds improvement, processing, storage, and marketing, and ensure secure and equal access to productive resources especially by small agriculture, livestock & fisheries producers. The Government will facilitate this by working to restructure the sector and create a regulatory framework to encourage the banks and private sector to enhance investments and finance into agriculture; change the level and composition of public expenditure to more efficient and effective programs, and provision of public goods; and facilitate and promote technological improvements along the full value chain, particularly for products such as fresh and processed fruits, vegetables and livestock products for which demand is increasing.

Reducing Poverty, Food and Nutrition Insecurity. To meet the SDGs related to poverty, gender and malnutrition, Sindh has to halve the number of poor and eliminate extreme poverty; end hunger and ensure access by all people, to safe, nutritious and sufficient food all year round; and end all forms of malnutrition. Higher overall growth and increased productivity will be the main engines for reducing poverty and malnutrition in rural areas. This will be complemented by Government actions to enhance the productive assets of the rural poor; provide inputs and services to the poor and those living in remote and resource poor areas; and encourage nutrition-sensitive agriculture production and household level consumption.

More Sustainable Natural Resources Use. The key natural resources for agriculture in Sindh are its soil and water and to conserve these, Government will promote better on-farm water management; regulate and control groundwater resources, coastal areas, and rangelands; enhance effective controls on pollutants, including fertilizer, pesticides and effluents; and promote agro forestry and improvement of grazing areas.

Creating a Resilient and Climate Smart Agriculture. In coming years, Sindh's agriculture and its rural population will have to cope with higher rainfall, temperature and river flows, as well as with the increased frequency and greater intensity of natural disaster such as floods, droughts, tsunamis and sea storms. To help cope with these changes, and to reduce the greenhouse gas emissions, the Government will: promote suitable agriculture practices, including new livestock breeds and seeds; upgrade or build suitable infrastructure, particularly at farm level, to deal with higher, but more variable rainfall and consequent floods and droughts; improve dissemination of up-to-date weather information and early warning of disasters; launch agriculture and livestock insurance programs; prepare contingency plans and set aside funds in case of major unforeseen disasters; and introduce improved crop storage and preservation techniques.

In order to achieve the objectives set out above, both public and privately-sourced investments will be critical. Public sector allocations for the agriculture sector, including livestock, fisheries and irrigation, was PKR64 billion in 2017/18 which marks a major increase

from past years and reflects the importance the Government of Sindh gives to the development of agriculture. In the coming years continued efforts will be made to improve the impact and effectiveness of public spending, particularly through improvements in planning, expenditure and human-resources systems. At the same time public investment, accompanied by regulatory and institutional changes, will focus on facilitating and encouraging private investment.

The Government of Sindh is strongly committed to the new Agriculture Policy and to the process of change and reform that it implies. A professional Change Management Team, with Delivery Units in the Departments of Agriculture and of Livestock and Fisheries, will be responsible for detailed planning and implementation. A communications plan will also be put in place to inform key opinion makers, parliamentarians and the public of the purpose, plans and implementation of the change process. The overall process of implementation will be overseen by an Agriculture Policy Implementation Commission comprising concerned Government institutions, farmers' associations, private sector and academia. The Minister of Agriculture, Supply and Prices will chair the Commission.

1. Background

In order to play the role envisaged under the 18th Amendment, the Government of Sindh has articulated this vision for the development of the agriculture sector. The vision is complemented by a set of high level policy objectives and key actions related to laws, regulations and investments. In addition, practical arrangements for implementation, monitoring and evaluation, as well as for mid-course corrections are being set in place.

The Sindh Agricultural Growth Project funded by World Bank played the lead role in preparation of the policy with the strong participation of the Departments of Agriculture, Supply & Prices, and Livestock & Fisheries. A high level Technical Working Group, headed by the former Vice-Chancellor of Sindh Agriculture University, Tando Jam, was appointed by the Government and met in April 2016 and March 2017 to provide guidance on the overall vision and goals of the policy and strategy. In addition, two Technical Working Committees, set up under the leadership of the Former Secretaries of Agriculture and of Livestock and Fisheries, with participation of departmental experts, academics, farmers and private sector, provided field perspectives on issues, problems and possible solutions.

The work on formulation of the Agriculture Policy builds on, and is complementary to, the Irrigation Strategy for Sindh which was issued in April 2016 by a team of national and international experts and is under process of final approval by the Government. The work is also being closely coordinated with the Sindh Government's Accelerated Action Plan for Nutrition. The Agriculture Policy in Sindh is well aligned to the national Food Security Policy being prepared by the Ministry of National Food Security and Research and is aligned to the strategies and efforts of overall Sindh Growth Strategy.

The policy builds on a series of background studies in the areas of macroeconomic factors; poverty and gender; climate change; value chain enhancement; resource use efficiency; nutrition; and fiscal space utilisation.

Technical and financial support is provided by the ongoing World Bank funded Sindh Agriculture Growth Project (SAGP); by the International Food Policy Research Institute (IFPRI); and, through EU funding support, by the Food and Agriculture Organization of United Nations (UN-FAO).

A Provincial Consultative Workshop was held in September 2017 to discuss the key findings of the background studies and the main policy recommendations that have emerged as a result of the consultations to date. The workshop was attended by over 70 people including concerned ministers, secretaries, senior government staff, academics, farmers' representatives, civil society, and development partners. Participants highly appreciated the technical quality and relevance of the background studies that had covered the efficiency of resource use, marketing and value chain aspects, poverty and gender, climate change, and nutrition. The meeting also endorsed the main policy objectives and proposed action areas, but made several suggestions for change which have been incorporated.

The time horizon of the Agriculture Policy will be until 2030 to align with the internationally agreed Sustainable Development Goals. However, the various legal, regulatory, institutional and expenditure-related changes set out in the Policy would be implemented over a two year period (2018-2019 and 2019-2020).

The Agriculture Policy was discussed and approved at a Cabinet Meeting of the Sindh Government on 16 April 2018. The Cabinet Meeting also set up an Agriculture Policy Implementation Commission, chaired by the Minister of Agriculture, Supply and Prices Department to oversee implementation of the policy and address issues and problems as they arise.

1.1 The Current State of Agriculture

Sindh is the second largest province in Pakistan, after the Punjab, in terms of population, contribution to GDP, employment and exports. The current population of Sindh is about 48 million. With an annual growth rate of 2.4 percent it is projected to increase to 58 million in 2025 most of which would be in urban areas. The increased population growth and urbanization will require increased food and raw materials which the agricultural sector has to provide at reasonable cost.

In terms of agriculture, Sindh accounts for 18 percent of the country's land area, 16 percent of its total cropped area, and contributes about 23 percent to national agriculture value-added. The sector has not performed to its potential. Output was low in 2015/16 which led to agriculture growth being negative for the first time in the country's history. Output has since recovered but growth over the past decade has been modest - below or near to population growth – which acts as a break on overall economic performance. More critically, what little growth has occurred has been the result of more land, water and inputs, higher livestock numbers, or greater fishing effort. Such an input-based pattern of growth is not sustainable – for example, it is estimated that by 2025 the water requirements for agriculture would increase by about 50 percent if the current irrigation practices continue. In coming years, enhanced productivity has to take over as the principal engine of growth. However, productivity growth has been low and is well below other countries in the region.

Low productivity is also a principal cause of low incomes and high food prices, which make it difficult for the majority of Sindh's population to afford a nutritious diet and constitute a principal cause of the widespread malnutrition.

1.2 Potential

The Province has a number of resource advantages compared to other parts of Pakistan, of these the principal ones are good climate, location, soils and water. Sindh's soils are mainly alluvial – brought down by the River Indus and its tributaries. The organic content is generally good but organic content tends to be low in the arid and semi-arid areas and some critical minerals such as potash and zinc are deficient.

There are three barrages in Sindh that divert water from the Indus into a large complex system of 14 Main Canals; 117 Branch Canals, 1,400 Distributary and Minors; and 44,000 Watercourses. Under the national Water Accord (1991), Sindh has an allocation of 41.55 percent of the water of the Indus Basin Irrigation System, which is 48.76 MAF (33.94 MAF in Kharif Season & 14.8 MAF in Rabi Season), out of 117.35 MAF allocated to all the provinces. An analysis of canal flow data from 1991-2014 from the three barrages in Sindh shows that, on average 44 MAF is diverted from river, which also contains the 3 percent share belonging to Balochistan. Surface water from the Indus system is completed with groundwater which is extracted by almost 100,000 tubewells at an estimated safe yield ranging from 4.4 to 8.1 MAF as (16 percent of the national total). The combined use of surface, groundwater and rains

allows cultivation on a total command area of 4.77 million hectares (excluding orchards, forests and saline area), as follows:

Unit / Title	Orchards	Crop on Irrigated	Crop on Marginal Irrigated Saline	Crop in River Flood Plain	Crop on Rain-fed	Forests
Million Hectare	0.13	4.02	1.50	0.40	0.35	0.12
% of Total Area of Sindh	0.9%	28.5%	10.6%	2.8%	2.5%	0.8%

Sindh also has a large livestock population and livestock production accounts for well over half of agriculture GDP. There are 18.1 million cattle and buffaloes which are mainly kept for milk. Most rural households, including the landless, keep a buffalo, a cow or goat. These are mostly managed by women. Milk from these animals is a critical source of food, and in particular of protein. For many families, it is also their main asset which can be sold in times of urgent cash requirements. There is also a rapidly expanding peri-urban population of cattle, mainly concentrated in *cattle colonies* near the big cities, to supply urban consumers. Important by-products from cattle are meat, from mature adults and young males, and hides. There are also almost 21 million sheep and goats, many of which are around Badin and Thatta where they are grazed on arid and semi-arid land. Sheep and goats are mainly kept for meat and many are sold during the Eid festival or at the time of need. A number of live animals are traded informally across the borders to the west. The productivity of the cattle, sheep and goat is low and variable. There is considerable potential to expand supply to meet rising domestic and regional demand. This needs to be done through increasing productivity, rather than numbers, through better animal breeds, a greater focus on preventive health care, improved husbandry and careful range land management. Increased productivity would increase output, improve nutrition and reduce consumer prices.

	Buffalos	Cattle	Goat	Sheep	Camel	Poultry
Numbers (million head)	9.3	8.8	15.9	5.0	0.4	152

Poultry has been a major success in Pakistan. Growth has been rapid and mainly comes from the medium to large commercial farms – of which there are over 5,000 in Sindh. Due to good availability and low prices poultry now accounts for over 25 percent of meat consumption. In contrast, small rural poultry producers find it difficult to compete due to a high prevalence of disease and poor breeds.

Sindh has 350 km of coastline and coastal waters, up to 20 km from the coast, are reserved for the exclusive use of local artisanal fishers. There is good potential to raise productivity of the coastal waters and coastal lands through aqua-culture and mari-culture, as well as through simple technological improvements such as use of flake ice by fishers, and after care.

The main crops in Sindh are wheat, rice, cotton and sugarcane. Good soils and high temperatures allow cultivation of quality cotton, while the sugar content of sugarcane in Sindh is higher than in the Punjab. A rising proportion of land is being allocated to the so

called minor crops including fodder, oilseeds and horticulture. These crops, despite their small area relative to the traditional major crops, make up a large and growing proportion of the gross value of production. Sindh produces fruits and vegetables in large quantities including mango, banana, dates, onion and red chillies. Much of the production of these higher value crops is concentrated in well-defined clusters -vegetables and milk in the peri-urban areas of Karachi and Hyderabad, dates in Khairpur, Red Chillies in Umerkot, bananas in various clusters, Onion in Tando Allahyar, Jamshoro, Sanghar and Matiari districts. Being located to the south, the crop growing season in Sindh is several weeks earlier than in the Punjab, Khyber Pakhtunkhwa and Balochistan and this translates into a strong market advantage for horticulture products. There is a huge potential for increased output through improved efficiency. Average yields are very low and harvest-post harvest losses are high - over 35 percent for almost all fruits and vegetables. Improved quality, improved storage, packing, handling and transport and processing would also improve returns and reduce prices and price fluctuations.

	Wheat	Rice	Cotton	Sugarcane	Mango	Onion	Chili	Dates
Area (000 ha)	1,049	782	596	317	63	50	35	34
Yield (t/ha)	3.6	3.4	6.0(bales)	52.5	6.4	13.4	2.8	8.3
Gross Value of Production PKR bill,	108	53	102	75	12	20	15	21

The existence in Sindh of the two of the largest cities in Pakistan, as well as a number of medium to large towns such as Sukkur, Badin, Thatta and Khairpur, provides good demand for agricultural products with demand growing particularly fast for fruits, vegetables, milk and meat. The large markets are also increasingly sophisticated, with premiums paid for branded quality products. The ports at Karachi, in Sindh, and at Gwadar, in Balochistan, as well as good road and rail transport links, allow access to both national and international markets.

1.3 Challenges

Yields in Sindh for many crops and livestock are well below potential and generally lower than in neighbouring regions. More critically, economic returns to water, which is one of the major limiting factors for expansion; and to labour which is a major determinant of incomes and living standards – are low. On the other hand, in several areas where small to medium scale progressive farmers, or corporate farms using leased land, are taking the lead in high-tech commercial farming, yields and returns are very much higher. These large yield gaps indicate the potential of raising productivity across the province by using better seed, site specific fertilizer mixes, and improved cultivation methods.

Transport links and value chains, apart from those that link to the major cities - are not well developed in Sindh. This results in high transport costs, and, combined with poor packing and storage practices, results in large losses. At the same time, rural-based processing is mainly limited to sugar, rice-milling and cotton ginning, while for high value crops including

horticulture livestock and fishery products such facilities are largely absent. Most fruits and vegetables, as well as a large portion of grains and oil seeds are traded in the wholesale agricultural markets of Sindh, including Karachi, Hyderabad, Mirpurkhas, Khawaja Goth, Mehar, Kunri, Khairpur and Sukkur. Most of these wholesale markets, which are government controlled with strong barriers to enhanced competition, tend to be inefficient and non-transparent, lacking for example, an open and competitive auction process; lack of proper storage facilities for short term and long term storage; lack of proper sale, purchase and payment mechanism; and limited quality control facilities. There are also a number of restrictive and non-transparent marketing arrangements which create large gaps between prices paid at retail outlets and what farmers receive. Lack of storage and processing facilities, along with non-transparent market practices cause massive fluctuations in prices.

Credit flows into agriculture are limited – the main source of institutional credit is the Zaria Tarikiyati Bank (ZTB) whose agricultural operations are severely constrained by a large portfolio of nonperforming loans, most of which are to large farmers. Commercial banks still find it difficult to make loans to small farmers and their collateral and procedural requirements are cumbersome and costly for small farmers. Microfinance institutions are growing but still account for a small proportion of needs. The lack of institutional credit implies that most farmers rely on informal source of credit. This mainly comes from the middle men (*arthis*) who supply inputs on credit, who also provide emergency loans and advances in time of emergency. In return, the middle man is the main buyer of the farmers' output, often charging large margins for his services, and the businesses transactions are interlocked.

1.4 Poverty and Gender Issues

About 30-35 percent of Sindh's population lives below the poverty line. Rural poverty is often attributed to lack of assets, particularly land. Most poor are landless or have small holding with limited access to water. In Sindh, the main driver of poverty is the large proportion of the rural poor that has very small holdings or is landless. The poor are heavily dependent on remittances; local employment opportunities, for example during land preparation, sowing or harvesting; off-farm activities such as processing; or services such a trade and transport. Other groups among whom poverty is high are the nomadic or semi-nomadic populations who graze their livestock – mainly sheep and goats – in the arid areas or on crop residues after harvest; and the small-scale artisanal fishers who operate in the coastal water. Another driver of poverty is the predominance of share cropping in Sindh where 56 percent of all land and almost 60 percent of all farmers are share croppers– the corresponding figures for the Punjab are 7 percent of land and 8 percent of farmers (HIES 2010).

Women play a major role in Sindh agriculture which has been increasingly rapidly due to migration of many young men to cities and towns in and outside Pakistan. A number of tasks, such as weeding, livestock rearing, and local food processing and conservation, are now mainly done by women. This is in addition to routine chores, which include fetching water for household use, sometimes from long distance. One of the most onerous tasks done by women in Sindh is cotton picking where hard physical effort is combined with long hours and unhealthy working conditions mainly associated with the pesticide residues on cotton.

1.5 Nutrition

There is a heavy burden of malnutrition in Sindh, including under-nutrition and micronutrient deficiencies and this is more pronounced in rural areas. The Government of Pakistan's last

National Nutrition Survey (NNS) conducted in 2011 (the next survey is due 2017-18), found that in Sindh province, 50 per cent of children under five years of age were stunted (low height for age), 41 per cent underweight and 18 per cent wasted (low weight for height). Of particular concern is the prevalence of stunting, which is irreversible and caused by inadequate nutrient intake in the first two years of life. The effects of stunting are lifelong and include diminished learning capacity. Malnutrition also has a significant presence in women of childbearing age. Micronutrient deficiencies exact a toll on agricultural workers' health and productivity, with Vitamin A, Iron and Zinc deficiencies being the ones of most concern. Low labour productivity caused by poor nutrition, particularly for women, who are proportionately more malnourished, causes significant lost productivity. In Pakistan overall, the opportunity cost of malnutrition to GDP is estimated to be three per cent.

The causes of malnutrition in rural Sindh, as elsewhere in Pakistan, are complex and include poverty, as well as substandard drinking water, bad diets, poor sanitation and hygiene, inadequate infant and young child feeding practices, early marriages, low space births and a lack of schooling and medical facilities. A multi-sector approach is needed to address this problem. Agriculture has a key role to play, particularly through increasing the diversity of the diet consumed by Sindh's population. This needs to occur firstly through increasing the availability of fresh, quality and safe produce from the horticulture, dairy, meat, egg, and fisheries sectors, and secondly through improving the incomes of agricultural and rural workers and their families in order to increase both the quantity and quality of food consumed. The cultivation of bio-fortified wheat should also be considered, given the dependence on wheat as the staple for most Sindhi people.

1.6 Environmental Issues

A number of emerging environmental problems, mainly related to land and water, are becoming critical in Sindh. Crop production is mainly concentrated in areas where irrigation is available. However, water is often over-applied by farmers at the head of canals, distributaries and watercourses and, this, combined with heavy soils, saline groundwater and poor drainage are causing salinity and waterlogging. There are also growing problems with use of lands in the flood plain of the Indus – the so called *Katcha* land. In these areas, unregulated use of lands, construction of polders and installation of tube-wells is affecting flood flows and ground water overuse.

Concentration on a continuous wheat and cotton rice rotation, with high use of fertilizers and pesticides, particularly in cotton, is affecting soil and water quality, whence they enter the human food chain. Excessive use of inorganic fertilizers / pesticides, much of it of substandard quality, on fruits and vegetables is also harming human and animal health. In addition such commodities do not comply with the phytosanitary requirements of high value export markets. Similarly, much of the dairy industry is located in urban and semi-urban areas where over-crowding of animals and poor effluent disposal are resulting in increased risk of disease outbreak and groundwater contamination. Problems are compounded by disposal of untreated industrial and household effluent into rivers, streams and canals. As a result, polluted water is used for irrigation and domestic purposes and poses serious health risks. In a number of areas unregulated and heavy groundwater pumping is depleting the water table, as well as causing intrusion from both sea water and saline groundwater.

1.7 Climate Change

Climate change models indicate that Pakistan is a relatively small contributor to global changes, but it will be one of the countries most affected. Unfavourable climatic conditions

are already impacting livelihoods in the arid and semiarid areas of Sindh and in the coastal zone. Parts of the Province have had very limited rainfall in recent years. These drought conditions are increasingly interspersed with very high-rainfall events which have caused floods. Due to the flat topography of the Province, flood water can stagnate for several months with severe negative impacts on crops, livestock and human health. Other extreme events include sandstorms, dust storms, micro-cloudbursts, cyclones and tsunamis. Climate change projections suggest higher temperatures, increased risk of flooding, as well as increased frequency and intensification of rainfall and winds. These changes will create new challenges, as well as new opportunities.

Higher temperatures will increase water requirements for both crops and animals. More frequent extreme events such as floods, drought and cyclones would result in damages to both crops and livestock. The overall impact of these changes is likely to be negative – given the present farming, livestock and water management systems. However, change also creates opportunities and agriculture in Sindh needs to adapt and take advantage of the altered agro-climatic conditions. Higher rainfall, even if it is more erratic, could enhance overall water supplies if adequate on-farm or other local storage facilities are created; in arid areas, migrant herders can be quick to expand or contract their grazing herds provided there are facilities for culling or quick restocking; and flood waters could enhance soil quality provided there are sufficient drainage facilities to prevent water stagnating for long periods. With effective and timely investments agriculture value added could be significantly increased.

1.8 Public Expenditure for Agriculture Development

The levels of public development expenditures by the province have risen steeply following the 18th Amendment – allocations rose from PKR75 in billion in 2009/10 to PKR200 in 2016/17; utilization rates rose faster and actual expenditures rose from PKR37.6 billion to PKR171.6 billion over the same period. The allocations to agriculture¹ have generally risen in line with the higher level of overall provincial expenditures. In comparison allocations to irrigation, much of which is for canal lining, has increased sharply as a proportion of expenditure reaching 20 percent in the budget for 2017/18.

Year	Total ADP (PKR billion)	ADP Allocation (PKR Billion)		ADP Allocation (percent of Total)	
		Agriculture	Irrigation	Agriculture	Irrigation
2012-13	161	11.6	8.6	7.2	5.3
2013-14	165	10.8	16.4	6.5	9.9
2014-15	143	10.6	12.9	7.4	9.0
2015-16	142	11.9	27.2	8.3	14.9
2016/17	200	14.9	21.2	7.1	10.6
2017/18	244	15.3	48.9	6.2	20.0

Within agriculture, the bulk of allocations is for the Department of Agriculture (which covers crops) – PKR 12.5 billion in 2017/18, as opposed to PKR 2 billion for the Department of Livestock and Fisheries.

¹ Including agriculture, livestock, fisheries, food, forestry and wildlife –irrigation figures are shown separately.

A review of overall levels of public expenditures on agriculture suggests two major things. Firstly, actual expenditures are generally well below allocations. For example, the Departments of Agriculture and of Livestock and Fisheries were allocated almost PKR13 billion in 2016/17 but actual expenditures were only PKR4 billion – less than 25 percent. In part this is due to slow and late release of funds and partly due to financial, procurement and expenditure issues within the Departments. Secondly, much of annual allocations, as well as actual spending is allocated to ongoing projects, which have already been approved, which leaves little space for changing priorities or taking on new programs and projects.

Other issues with public spending are the large recurrent, salary related expenses, particularly in research and extension; a very high priority to the Government of Sindh’s tractor program – almost one third of total public-sector expenditures for agriculture, livestock and fisheries were for provision of tractors; and the high proportion of livestock expenditure on veterinary and animal health aspects – mainly curative, as opposed to preventive aspects.

2. New Agriculture Policy for Sindh

2.1 Vision for Agricultural Development in Sindh

The vision for agricultural development in Sindh needs to reflect its multifaceted nature and the critical role it plays in the economy and the lives of people. In rural areas, agriculture is the main driver of incomes, consumption, savings and investment; employment; poverty levels and food security; and the quality of the environment. In addition, the storage, processing, production, storage and transport of agriculture related inputs and outputs have a direct impact on the economic life of villages, towns and cities in the Province. Agriculture will also bear the brunt of projected climate changes, and its resilience and capacity to cope with higher levels and variability of temperatures and rainfall will be a critical driver of how the overall economy of Sindh will cope in the coming decades. Keeping in mind there is need to create:

An efficient, prosperous and resilient agriculture sector that can provide good incomes and decent employment to those involved in production, processing, transport and storage; and at the same time provide safe, nutritious and cheap food to urban and rural Populations.

2.2 A Strategy for Change

Sindh had good land and water as well as a hard working labour force. The productive potential of the province needs to be unleashed. To achieve this, there is a need to take action on two major fronts: firstly, strengthen markets and secondly, redefine and strengthen the role of the Government. Reform of laws and regulation that limit competition and market driven decisions, and deal the matter of distortionary pricing and introduction of well thought and targeted subsidies is a prerequisite to a revival of growth in the sector. This needs to be accompanied by a transformation and strengthening in the role of the Government to that of a producer and promoter of public goods, in particular new technologies for production, processing, transport and storage; a regulator to ensure quality supplies of input and output; a champion for the poor and deprived who lack the assets and skills to raise their incomes

and have access to an adequate diet; and a leader in addressing emerging issues such as resource degradation and climate change.

2.3 Major Objectives of the Policy

In order to achieve this vision a number of key objectives have to be met. These are:

- Raise overall growth rate in the sector to 4-5 percent.
- Reduce rural poverty to half current levels, along with food insecurity and malnutrition.
- Make efficient and sustainable use of natural resources and minimize negative environmental impacts, make all efforts to preserve the agro-ecological resource base.
- Enhance resilience and climate change adaptability;

These objectives are closely aligned to the internationally agreed Sustainable Development Goals (SDGs) which are to be achieved by 2030. In particular, strong performance in Sindh would help the country meet SDG#1 (ending poverty), SDG#2 (improved nutrition and sustainable agriculture), SDG#5 (gender equality), SDG#6 (sustainable water management), SDG#8 (economic growth and employment) and SDG#13 (combat climate change). The SDG#14 (Life below Water) & SDG15 (Life on Land) are also significantly interlinked with this document.

Sindh, along with other provinces, is expected to monitor progress and report on the SDGs. To facilitate this, a special SDG unit has been set up in the Planning and Development Department. To facilitate reporting the Agriculture Policy would also run to 2030. The adoption of a policy for a relatively long period would also provide stability and predictability and help encourage private longer-term investment.

2.4 Agricultural Growth

Raising agricultural sector growth to 4-5 percent per annum is a prerequisite for an overall economic growth rate of 7-8 percent per annum for the province as a whole. These growth rates are a necessary condition to raising incomes and reducing poverty and food insecurity; providing decent employment, particularly to the large numbers of youth entering the labour market; and facilitating a greater attention to sustainability.

Future growth in agriculture & livestock must come from improving efficiency and productivity. Inputs such as land and water are already scarce and will become more so in the future. Even at current yield and price levels farmers find fertilizer, seeds, fodder, chemicals, packing materials veterinary medicines and machinery services to be expensive and are unlikely to purchase more unless margins increase in response to higher productivity.

To achieve higher growth, the sector will need to generate savings, attract the necessary investment, make the technological innovations in production, processing, storage, and marketing, and ensure secure and equal access to productive resources especially by small agriculture, livestock & fisheries producers. Among these, first and foremost, is a rise in gross capital formation in agriculture from its current low levels to 16-20 percent of agriculture GDP. The bulk of this investment has to be from the private sector and the Government will focus its efforts on a limited, but critical set of issues related legislation, regulation and guidance, public expenditure, and technology generation. These are set out below:

1. Restructure the sector and create a regulatory framework to encourage the banks and private sector to enhance investments and finance into agriculture.
2. Change the level and composition of public expenditure to efficient and effective programs.
3. Facilitate and promote technological improvement such as cold chain storage along the full value chain, particularly for products such as fresh and processed fruits, vegetables and livestock products for which demand is increasing.

2.4.1 Key Actions

- ✓ Increase credit flows into crop, livestock and fisheries activities and for associated rural off-farm activities, including development of new instruments, such as warehouse receipts, and building linkages between formal and informal sources of credit.
- ✓ Simplify the procedure for land use, land transfer and lease for establishment of rural enterprises.
- ✓ Reform the legal and regulatory system governing agriculture and livestock marketing. Redesign the price support system into one that promotes competition and enhances transparency, market integration and competition, such as electronic trading and direct sales to private markets and supermarkets.
- ✓ Improve legislation, regulations, labelling and quality oversight in the market for inputs, particularly for seed, fertilizers, pesticides, and animal feed and veterinary medicines; as well as for outputs including a certification system for organic crop, livestock and fisheries products from special production areas.
- ✓ Attract private investors - both domestic and foreign- into rural areas, through fiscal incentives; a better legal/regulatory environment for commercial farming and for medium and large scale storage including cold chain, and agro-based industry; and promoting public-private partnerships, including through establishment of agro-processing parks and special zones in major production clusters.
- ✓ Promote exports of high value food production including crops, horticulture products, and livestock and fisheries products.
- ✓ Review and reallocate Government expenditure on agriculture - both development and recurrent – as well of the direct and indirect subsidies. Public expenditure needs to move away from distortionary or ineffective subsidies to public goods, such as quality control and certification of agricultural inputs and outputs through accredited laboratories – both for domestic and export markets; research, extension and innovation; surveillance and control of major pests and diseases affecting crops and livestock; and improvements in the supply chain.
- ✓ Restructure, right size and rationalize, concerned Government departments to be made “*fit for purpose*”, avoiding duplication of efforts and with improved coordination.
- ✓ Reform the public research and extension systems for crops, horticulture, livestock and fisheries, particularly their governance mechanism, and enhance competitive funding for their activities with strong involvement of the private sector and academia. Launch special training and extension programs, in close collaboration with the private sector, to minimize the post-harvest losses and proper packing, handling, storage and transportation.

- ✓ Promote ICT-focused research and innovation in agriculture and livestock production and marketing, particularly related to logistics and supply chain management.
- ✓ Promote Good Agriculture Practices (GAP) and Precision Agriculture.

2.5 Poverty, Food and Nutrition Security

Pakistan has committed to the Sustainable Development Goals (SDGs) which set out well defined targets related to poverty, gender and malnutrition to be achieved by 2030. Success in meeting these SDGs will depend to a large extent on progress in rural Sindh given its high rates of poverty, malnutrition and gender-based exclusion. The Government of Sindh is committed to reach and exceed these targets which include at least halving the number of poor and eliminating extreme poverty – defined as incomes of less than US\$1.25 per day; ending hunger and ensuring access by all people, to safe, nutritious and sufficient food all year round; ending all forms of malnutrition and addressing the nutritional needs of adolescent girls, pregnant and lactating women and older persons; and doubling the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers.

Higher overall growth and increased productivity in the agricultural sector specifically staple crops and livestock products (e.g. meat and dairy) will be the main engines for reducing poverty and malnutrition in rural areas, but will need to be complemented by targeted actions that focus on the most vulnerable. There is also an urgent need to reduce the rates of food and nutrition insecurity, particularly among children. This will need more nutritious food being available at household level; better practices for storage, processing and consumption at household level; and lowering the cost of a nutritious diet in Sindh, which is presently over PKR 2,000 per head a month.

The Government of Sindh will undertake actions to:

1. Enhance the productive assets of the rural poor, such as small share croppers, cattle farmers, the landless, transhumant, small-scale fishers, and women headed households.
2. Provide inputs and services to the poor and those living in remote and resource poor areas.
3. Encourage nutrition sensitive agriculture production and household level consumption.

2.5.1 Key Actions

- ✓ Strengthen grant and credit programs, particularly micro-credit programs, to augment assets of the poor such as small irrigation or water harvesting for crops and horticulture production; livestock sheds, breeding & milking facilities, milk chillers, poultry farming initiatives; fishing gear and boats; and small-scale food preservation, storage and processing units.
- ✓ Promotion of arid agriculture and range land management.
- ✓ Promotion of silage.
- ✓ Introduce tagging and traceability for livestock and digitize data of livestock & poultry with integration of veterinary services and customer feedback mechanism through cell phones.
- ✓ Promote R&D for livestock breed improvement & control transboundary diseases.

- ✓ Enhanced use of Agriculture & Livestock yields preservation techniques. Utilize the Agricultural Yield Storage Potential by introduction of latest techniques. Reduce food loss and waste.
- ✓ Expand special programs for the remote and resource-poor areas of the Province.
- ✓ Provide skills and training for rural youth and women in on and off-farm activities and enterprises, providing incentives for implementing demonstrated effective interventions, for example in homestead-scale poultry rearing, kitchen gardening and aquaculture.
- ✓ Update the Sindh Tenancy Act to align it to the internationally agreed Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests (May 2012) and ensure adequate enforcement mechanisms.
- ✓ Create targeted subsidy and assistance programs for the poor - these would include services such as extension and animal health services, as well as improved inputs such as seeds and fertilizer. Targeting should be linked to the biometric Computerized National Identity Card (CNIC).
- ✓ Launch special training and extension programs for rural households, particularly women, on production and consumption benefits of more nutritious foods including fruits, vegetables and livestock products, and to raise incomes for the purpose of buying more and better food items to supplement subsistence.
- ✓ Introduce more research and information dissemination on food utilization, in close coordination with other Departments working on these issues, particularly the Departments of Health and of Education NGOs and civil society.

2.6 Natural Resources Use

The key natural resources for agriculture in Sindh are its soil and water. There are strong and complex linkages between growth, poverty, gender and sustainability. Some of these are negative spirals where low growth and high poverty leads to low efficiency and destruction of natural resources, particularly open access resources such rivers, coastal areas, grazing lands and aquifers. However, there are many examples of win-win situations where higher incomes, reduced inequity, and clear and well-implemented laws and regulations go hand in hand with much improved resource use. In Sindh the Government will work to:

1. Promote better on-farm water management.
2. Regulate and control groundwater resources, coastal lands and water, and grazing areas.
3. Enhance effective controls on pollutants, including fertilizer, pesticides and effluent runoff.
4. Promote Forestry, especially agro forestry.

2.6.1 Key Actions

- ✓ Improve farm-level water use efficiency through better water management including water course improvement and land levelling; use of new technologies such as drip irrigation and waste water recycling; and enhanced cultivation of crops with higher monetary returns to water.
- ✓ Legislate and enforce more sustainable use of groundwater.
- ✓ Promote soil testing on nutrient status for appropriate doses of fertilizer to enhance production.

- ✓ Promote on-farm tree plantations, including cultivation of Hurries and farm linear plantation.
- ✓ Control deforestation in riverine and settled and restore these forests to preserve the ecological resource base.
- ✓ Promote Grazing lands for livestock by using bio-saline agriculture techniques (Hay-Grass).
- ✓ Regulate fishing effort, particularly gear and boats, and enforce a ban on deforestation in mangrove areas.
- ✓ Launch special programs for improvement of rangelands.
- ✓ Improve implementation of relevant laws and regulations for pollution control, including through greater use of remote sensing and other ICT tools.
- ✓ Give priority attention to pollution “hotspots” such as industrial areas where chemical and other effluent is dumped into soil and water, and to highly concentrate peri-urban dairy production areas.

There is also a need to introduce technical and institutional reforms in the water sector from above the farm level up to the main barrages. Such reforms are necessary to halt and reverse the poor maintenance of water infrastructure, and address inequitable and inefficient use. This includes greater coordination between irrigation and agriculture departments / institutions to manage supply and demand. These and other actions related to the irrigation system are covered in the Government of Sindh’s Irrigation Strategy which is in the process of approval with the Government. In the meantime concrete actions are underway through the Sindh Irrigated Agriculture Productivity Enhancement Project and the Sindh Water Sector Improvement Project.

2.7 Resilience and Climate Smart Agriculture

Sindh’s agriculture and its rural population have to cope with higher rainfall, temperature and river flows that are expected as Sindh’s climate continues to change, as well as with the higher frequency and greater intensity of natural disaster such as floods, droughts, tsunamis and sea storms². There is also a need to reduce the greenhouse gas emissions from livestock and crops. To do this, the Government will:

1. Promote suitable agriculture practices, including new livestock breeds and seeds, along with modified cultivation and animal husbandry practices which reduce emissions and are suitable for the emerging weather conditions.
2. Upgrade or build suitable infrastructure, particularly at farm level, to deal with higher, but more variable rainfall; and floods and droughts.
3. Improve dissemination of up to date weather information and early warning of disasters.
4. Launch agriculture and livestock insurance programs to reduce income variability for farmers.
5. Prepare strong contingency plans and set aside funds in case of unforeseen disasters.
6. Introduce latest crop storage and preservation techniques.

2.7.1 Key Actions

- ✓ Provide extension and farmer trainings services for technical adaptations such as sowing times, crop rotation, irrigation schedules, mulching and organic matter

² In this respect we may note that the GoSindh Provincial Disaster Management Authority is formulating a Sindh Drought Mitigation Policy and Operational Plan, which will complement this Agriculture Policy.

management; and provision of quality seeds for crops with lower water requirements and growing periods.

- ✓ Test different indigenous and exotic crops and livestock and fish breeds for resistance to heat shocks, drought, flooding and salinization and popularize suitable varieties/breeds.
- ✓ Promote technologies and practices that reduce emissions such as improved animal feed and feeding techniques, manure use, and rangeland management; and better water management, especially in rice areas, to reduce methane emission; and reduced tillage; and conservation agriculture to reduce fertilizer use.
- ✓ Increase public development and research funding for climate smart-agriculture, and control of new pests and diseases.
- ✓ Improve productive infrastructure in rural areas, both public and private, to deal with bigger and more frequent floods and with seawater intrusion.
- ✓ Providing timely weather forecasts through SMS and other channels to farmers. Provide for disaster relief and rehabilitation, with a particular focus on vulnerable areas and on the poor.

3. Investment Needs

Agricultural GDP in Sindh is estimated at about PKR 1,600 billion (US\$15.5 billion). In order to achieve a 5 percent growth rate, total investment – both public and private - in agriculture would need to be around 20 percent of agricultural GDP equivalent to PKR320 billion (US\$3 billion) per annum.

An efficient public investment programme needs to focus on key common-property infrastructure, public goods, and on regulatory functions. As much as possible it will facilitate and encourage private investment. In a stable and well-functioning macroeconomic and political environment, each Rupee of public investment should mobilize 4-5 Rupees of private investment. On this basis public investment needs for agriculture would need to be about PKR70 billion (US\$ 650 million) per year. In comparison, actual spending on agriculture including crops, livestock, fisheries, forestry and irrigation has averaged PKR 20 billion over the past five years to 2016/17 of which over 80 percent is for irrigation. Allocation levels for agriculture in 2017/18 have been increased dramatically to PKR 64 billion – 80 percent more than in 2016/17. While the overall allocation is roughly in line with the requirements, the increase is largely for irrigation (mainly canal lining) and allocations for other activities has stayed virtually unchanged.

Allocation (PKR bill.) for:	Agriculture (Crops)	Livestock	Fisheries	Irrigation	Other Agriculture	Total
2016/17	11.0	1.2	0.7	21.2	1.2	35.3
2017/18	12.5	1.3	0.7	48.9	0.9	64.1

The Government will work to increase public investment in crops, livestock and fisheries. However, before allocations are increased the concerned departments will review and revise their portfolios to align ongoing activities, projects and programs with the new policy; strengthen their planning and expenditure systems to ensure that they are able to absorb additional funding; undertake a spending review to assess the effectiveness and efficiency of

their regular activities, particularly the use of large numbers of support staff; and prepare restructuring and human development plans.

4. Implementation Arrangements

The new Agriculture Policy implies substantive changes in the legislative and regulatory framework governing the agriculture sector; in the work and functioning of the two concerned departments; and in the focus and scope of the public investment programs. Undertaking such a change process is likely to prove challenging, and “business as usual” arrangements are unlikely to prove effective. There is a need to provide high level management and oversight to the process, along with technical support and guidance to line managers.

Key next steps include preparation of detailed strategies and action plans, along with strengthened capacity in the two concerned departments to implement the policy, as well as in the Planning and Development Department to guide and manage the change process. Technical and financial support will be sought from the Sindh Agriculture Growth Project and other donors for this effort.

4.1 Management and Oversight

A high level Agriculture Policy Implementation Commission will be constituted to oversee and guide the implementation of the Agriculture Policy. The ToRs of commission are:

- i. The Commission would meet every two months or as considered necessary by the Chairperson
- ii. The implementing departments of Sindh Agriculture Policy 2018 – 2030 will be Agriculture Supply & Prices Department, Livestock & Fisheries Department and Forest and Wildlife Department.
- iii. To oversee the preparation of strategies and action plans by the implementing departments.
- iv. To review and approve strategies and action plans of the implementing Departments and coordinate with Planning & Development Department for mobilizing necessary funding.
- v. To appoint and supervise the work of Change Management Unit which will assist the implementing Departments in the change management process.
- vi. To review work plans and progress on the various action points of the Sindh Agriculture Policy and issue time bound instructions as necessary to the concerned Departments and offices for achieving those goals.
- vii. To mobilize financial and technical support from Development Partners, Private Sector and Civil Society as required.
- viii. To make and carry out a communication strategy and plan.
- ix. To keep the government informed of the progress and place critical issues before the Government to be resolved.
- x. The Commission may appoint Co-opted member(s) from relevant Sectors / Industries / Institutions as per requirement.

4.2 Technical Support to Senior Management of the departments

The Commission would be supported by a Change Management Team which would assist the implementing departments in change management process. The Change Management Team will comprise of experts with deep knowledge of managing change processes in large complex organizations. The team will initially be recruited for a two year period during which most of the legal, regulatory, institutional and expenditure-related changes would be implemented.

The bulk of responsibility for implementation of the Policy will be on the implementing departments (Agriculture; Livestock & Fisheries; Forestry). In order to support them, Delivery Units will be created, one in the Department of Agriculture, Supply and Prices (this will also cover agroforestry initiatives), and one in the Department of Livestock and Fisheries. The units will comprise of experts recruited through an open, competitive process. The units will report directly to the respective Secretaries, and their first task will be preparation of detailed action plans setting out timelines, implementation responsibilities, progress indicators and reporting requirements. A team of experts will also be based in P&D Department for overall guidance.

4.3 Communications

Implementation of the new policy will mean deep transformational changes in the sector. It is essential that short, medium and long term implications of the change process are well communicated to the key opinion makers, parliamentarians and the public. A well conceptualized and efficiently implemented communications plan is essential for this, which will be prepared in six months' time after approval of the policy.

Chronology of Efforts & Events

S#	Efforts / Activities	Date
-	Discussion to initiate process for formulation of Sindh Agriculture Policy and decision to request technical support of United Nation's Food & Agriculture Organization (UN-FAO), Pakistan, in First (1 st) Project Steering Committee Meeting of SAGP.	4 th Feb, 2015
-	P&D Department sends official request to UN-FAO-PK for Technical Assistance & Support	22 nd Oct, 2015
-	P&D Department Notified Technical Working Group (TWG) to provide overall policy guidance and support.	26 th Oct, 2015
-	Mr. Daud Khan, Former Director, UN-FAO-HQ Rome joins PCU-SAGP and Senior Policy Advisor / Principal Author.	1 st Dec, 2015
-	Senior Policy Advisor's First Consultative Meetings with Sindh Abadgar Board & Sindh Chamber of Agriculture in Hyderabad.	2 nd Dec, 2015
-	Outline for Policy and ToRs of Three Diagnostic Studies.	26 th Feb, 2016
-	Draft outline for policy sent to members of Technical Working Group for review and comments.	11 th Mar, 2016
-	Comments received from Mr. Gadda Hussain Mahessar, Veteran Agriculturist from Larkana & Mr. Abdul Fatah Tunio, Senior Chief (Agriculture), P&D Department, GoSindh.	22 nd Mar, 2016 & 1 st Apr, 2016
-	Second Request to TWG Members for review and comments of Policy Draft & ToRs.	30 th Mar, 2016
-	First Meeting of TWG for formulation of Sindh Agricultural Policy at Greenwich University, Karachi.	14 th Apr, 2016
-	P&D Department, GoSindh notified working committees for Agriculture and Livestock Sectors.	10 th Oct, 2016
-	Agriculture Working Committee of TWG, First Workshop with Southern Sindh Farmers at Hyderabad.	11 th Nov, 2016
-	Livestock Working Group Meeting of TWG, at Hyderabad.	25 th Nov, 2016
-	Three Back Ground Studies Consultants contracted.	13 th Jan, 2017
-	Second Meeting of TWG and presentation of recommendations of two Working Groups of Agriculture and Livestock sectors.	29 th Mar, 2017
-	Ms. Genevieve Hussain joins PCU-SAGP, P&D Department, GoSindh team as FIRST Policy Officer from UN-FAO-PK.	17 th Apr, 2017
-	Preliminary Drafts of Background Studies received and reviewed with project team.	29 th Jun, 2017
-	Circulation of Preliminary policy note, outline Sindh Agriculture Policy to TWG Members.	11 th Aug, 2017
-	Provincial Consultation Workshop for formulation of Sindh Agricultural Policy, Presentation of Main Policy Outlines, Three Background Studies, Comments of Farmers Groups, Civil Society and Policy Guidelines from Minister & Secretaries of Agriculture & Livestock Departments.	21 st Sep, 2017
-	Draft Sindh Agriculture Policy (2018-2030) circulated to Agriculture, Livestock, Finance, Irrigation, Forest, Environment and Wildlife Departments.	11 th Oct, 2017
-	Received Comments from Irrigation, Finance, P&D, Agriculture & Forests Departments	26 th Oct, 2017 - 26 th Jan 2018
-	Review & Incorporation of comments received from stakeholders	22 nd Feb to 2 nd Mar, 2018
-	Final Draft Sindh Agriculture Policy (2018-2030)	2 nd Mar, 2018
-	Final Draft Policy and sent to Secretary to GoSindh, Agriculture, Supply & Prices Department for further process of approval from Sindh Cabinet	2 nd Mar, 2018
-	Approval of Sindh Agriculture Policy (2018-2030) by Sindh Cabinet under the Chairmanship of worthy Chief Minister, Sindh	16th Apr, 2018
-	Notification of Sindh Agriculture Policy Implementation Commission (SAPIC)	2 nd May, 2018
-	First Meeting of SAPIC	5 th Nov, 2018

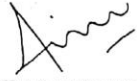
Scanned Image of Letter Sindh Cabinet Meeting Minutes, 16th April, 2018

NO.DS(SGA&CD)7(262)/2018
GOVERNMENT OF SINDH
SERVICES GENERAL ADMINISTRATION &
COORDINATION DEPARTMENT
(CABINET & ESTATE WING)
Karachi dated 21st April, 2018

1. The Provincial Minister for _____ (All).
2. The Advocate General Sindh, Karachi.
3. The Prosecutor General Sindh, Karachi.
4. The Chairman, Planning & Development Board, Sindh, Karachi.
5. The Additional Chief Secretary, Boards & Universities Department, Karachi.
6. The Secretary to Government of Sindh, Health Department, Karachi.
7. The Secretary to Government of Sindh, Finance Department, Karachi.
8. The Secretary to Government of Sindh, Law & PA Department, Karachi.
9. The Secretary to Government of Sindh, Information & Archives Department, Karachi.
10. The Secretary to Government of Sindh, Agriculture, Supply & Prices Deptt. Karachi.
11. The Secretary to Government of Sindh, School Education Department, Karachi.
12. The Secretary (Services), Services, General Administration & Coord. Deptt. Karachi
13. The Secretary to Government of Sindh, Transport & Mass Transit Deptt. Karachi.
14. The Secretary to Government of Sindh, Sports & Youth Affairs Department, Karachi.
15. The Secretary to Government of Sindh, Industries & Commerce Department, Karachi.
16. The Secretary to Government of Sindh, Livestock & Fisheries Department, Karachi.


SUBJECT: MINUTES OF THE PROVINCIAL CABINET MEETING HELD ON 16-04-2018

I am directed to enclose herewith a copy of the minutes of the Provincial Cabinet Meeting held on 16th April, 2018 duly approved by the Honorable Chief Minister, Sindh for information and taking necessary action, pertaining to your Department.


**LIAQUAT ALI BHATTI (PAS)
DEPUTY SECRETARY (CABINET)**

Copy is forwarded for information to:-

1. The Advisor/Special Assistants to Chief Minister, Sindh for _____ (All).
2. The Principal Secretary to Chief Minister, Sindh, Karachi.
3. The DS (Staff) to Chief Minister, Sindh, Karachi.
4. The DS (Staff)/PS to Chief Secretary, Sindh, Karachi.
5. PS to Secretary (GA), SGA&CD, Government of Sindh, Karachi.
6. PS to Additional Secretary (GA), SGA&CD, Government of Sindh, Karachi.


**LIAQUAT ALI BHATTI (PAS)
DEPUTY SECRETARY (CABINET)**

Notification of Sindh Agriculture Policy Implementation Commission,



GOVERNMENT OF SINDH
SERVICES, GENERAL ADMINISTRATION &
COORDINATION DEPARTMENT
(CABINET & ESTATE WING)
Karachi, dated the 2nd May, 2018

NOTIFICATION

NO.SOVI(SGA&CD)13-15/2018: In pursuance of the decision taken in the Provincial Cabinet meeting held on 16.04.2018 regarding agenda item No.8: "Sindh Agriculture Policy 2018-2030" the Government of Sindh is pleased to constitute a high level **Sindh Agriculture Policy Implementation Commission** comprising of the following members:

1.	The Minister for Agriculture, Supply and Prices	Chairperson
2.	The Chairman, Planning & Development Board	Member
3.	The Secretary, Finance Department	Member
4.	The Secretary, Agriculture, Supply and Prices	Member
5.	The Secretary, Livestock & Fisheries	Member
6.	The Secretary, Forest & Wildlife	Member
7.	The Project Coordinator, SAGP, P&D Department, Karachi.	Member
	Academia	
8.	The Vice Chancellor, Tando Jam, University.	Member
9.	One Representative from IBA Karachi or Sukkur.	Member
	Farmers' Representatives	
✓10.	President, Sindh Chamber of Agriculture.	Member
11.	President, Sindh Abadgar Board.	Member
	Private Sector	
12.	One Representative of Wholesalers and Exporters	Member
13.	One Representative of Input suppliers (Fertilizer or Seed Supplier)	Member
14.	One Representative of Civil Society / Consumers	Member

Terms of Reference (TORs):-

- i. The Commission would meet every two months or as considered necessary by the Chairperson.
- ii. The implementing Departments of the Sindh Agriculture Policy 2018-2030 will be Agriculture, Supply & Prices Department, Livestock & Fisheries Department and Forest and Wildlife Department.
- iii. To oversee the preparation of strategies and action plans by the implementing Departments.
- iv. To review and approve strategies and action plans of the implementing Departments and coordinate with Planning & Development Department and Finance Department for mobilizing necessary funding.
- v. To appoint and supervise the work of the Change Management Unit which will assist the implementing Departments in the change management process.

Deputy Secretary (Cabinet & PM)
SGA&C Department
Government of Sindh

- vi. To review work plans and progress on the various action points of the Sindh Agriculture Policy and issue time bound instructions as necessary to the concerned Departments and offices for achieving those goals.
- vii. To mobilize financial and technical support from Development Partners, Private Sector and Civil Society as required.
- viii. To make and carry out a communication strategy and plan
 - ix. To ensure transparency, accountability and stakeholder comprehension.
 - x. To keep the government informed of the progress and place critical issues before the Government to be resolved.
- xi. The Commission may appoint Co-opted member(s) from relevant Sectors/Industries/Institutions as per requirement.

**RIZWAN MEMON
CHIEF SECRETARY, SINDH**

NO. SOVI (SGA&CD) 13-15/2018


Karachi, dated the 2nd May, 2018

A copy is forwarded for information to:

1. The Principal Secretary to Chief Minister, Sindh Karachi.
2. The concerned Members of the committee
3. The DS (Staff) to Chief Minister, Sindh, Karachi.
4. The DS (Staff)/PS to Chief Secretary, Sindh, Karachi.
5. PS to Secretary (GA), SGA&CD, Government of Sindh, Karachi.


**LIAQUAT ALI BHATTI
DEPUTY SECRETARY (CABINET)**

Notification of Technical Working Group for Formulation of Sindh Agriculture Policy


GOVERNMENT OF SINDH
PLANNING & DEVELOPMENT
DEPARTMENT

NOTIFICATION

NO. SOA-DP&D/12(97)/12(PT-I) Government of Sindh is pleased to constitute a Technical Working Group to provide overall guidance and support for developing Sindh Agriculture Policy and Implementation Strategy with the following composition and TORs:

01.	Dr. Abdul Qadir Mughal, Former Vice Chancellor, Agriculture University, Tando Jam.	Chairman
02.	Secretary, Agriculture Department, Government of Sindh	Member
03.	Secretary, Livestock & Fisheries Department, Government of Sindh	Member
04.	Director General, Agriculture Research Sindh	Member
05.	Director General, Agriculture Extension Sindh	Member
06.	Director General, Agriculture Engineering & Water Mgt., Sindh	Member
07.	Director General, Livestock & Fisheries Department, Govt. of Sindh	Member
08.	Representative of Irrigation Department, Govt. of Sindh	Member
09.	Representative of Finance Department, Govt. of Sindh	Member
10.	Representative of Forest, Environment and Wildlife Department, Govt. of Sindh	Member
11.	President, Sindh Chamber of Agriculture	Member
12.	President, Sindh Abadgar Board	Member
13.	Mr. Khair Muhammad Jasejo, Progressive Farmer	Member
14.	Mr. Ghulam Qasim Jiskani, Progressive Farmer	Member
15.	Mr. Gadda Hussain Mahessar, Progressive Farmer	Member
16.	Mr. Melanood Nawaz Shah, Progressive Farmer	Member
17.	Mian Muhammad Saleem, Progressive Farmer	Member
18.	Mr. Akbar Dars, Dairy Farmer	Member
19.	Seth Jamil Memon, Dairy Farmer	Member
20.	Mr. Manthar Ali Jatoi, Dairy Farmer	Member
21.	Senior Chief Livestock & Fisheries, P&D Department, Govt. of Sindh	Member
22.	Chief, Agriculture, P&D Department, Govt. of Sindh	Member
23.	Representative of Sindh Agriculture University, Tando Jam	Member
24.	Representative of Shihond Benazir Bhutto University of Veterinary and Animal Sciences, Sakrand.	Member
25.	Project Coordinator, Sindh Agriculture Growth Project	Member / Secretary.

Contd. on P/2..

Notification of Technical Working Group for Formulation of Sindh Agriculture Policy

Page 2 of 2

Terms of Reference:-

- i. To provide overall guidance and support to the teams of experts for the development of Sindh Agriculture Policy / Development Strategy.
- ii. To receive presentations and offer comments/feedback to the teams of experts for finalization of the Strategy.
- iii. To recommend the draft Policy/Strategy to the Program Steering Committee for further processing.


ADDITIONAL CHIEF SECRETARY, SINDH

NO. 50(A-IV/P&D/12/97Y/12(PT-1)

Karachi, Dated 26th October, 2015.

Copy forwarded for information to:

1. Dr. A.Q. Mughal, Greenwich University, Karachi.
2. The Secretary, Finance Department, Govt. of Sindh.
3. The Secretary, Agriculture, Supply and Prices Department, Govt. of Sindh.
4. The Secretary, Irrigation Department, Govt. of Sindh.
5. The Secretary, Forest, Environment and Wildlife Department, Govt. of Sindh.
6. The Secretary, Livestock and Fisheries Department, Govt. of Sindh.
7. President, Sindh Chamber of Agriculture.
8. President, Sindh Abadgar Board.
9. Mr. Khair Muhammad Junejo, Progressive Farmer.
10. Mr. Ghulam Qasim Jiskani, Progressive Farmer.
11. Mr. Gadda Hussain Mahessar, Progressive Farmer.
12. Mr. Mehmood Nawaz Shah, Progressive Farmer.
13. Mian Muhammad Saleem, Progressive Farmer.
14. Mr. Akber Dars, Dairy Farmer.
15. Seth Jamil Memon, Dairy Farmer.
16. Mr. Manthar Ali Jatoi, Dairy Farmer.
17. Senior Chief Agriculture, Planning & Development Department, Government of Sindh.
18. Senior Chief Livestock, Planning & Development Department, Government of Sindh.
19. Director General, Agriculture Research Sindh.
20. Director General Agriculture Extension Sindh.
21. Director General, Agriculture Engineering & Water Management.
22. Director General, Livestock & Fisheries, Government of Sindh.
23. Vice Chancellor, Agriculture University Tando Jam.
24. Vice Chancellor, Shaheed Benazir Bhutto University of Veterinary and Animal Sciences, Sakrand.
25. Project Coordinator, Sindh Agriculture Growth Project, Sindh.
26. Deputy Secretary (Staff) to the Chief Secretary, Sindh.
27. P.S. to Additional Chief Secretary (Dev), Planning & Development Department, Govt. of Sindh.
28. P.S. to Secretary (Planning), Planning & Development Department, Govt. of Sindh.
29. P.S. to Chief Economist, Planning & Development Department, GOS.


(IMRAN SIBTAIN)
SECTION OFFICER (ADMIN-I)
Ph: 021-99211926

Notification of Working Committee of Agriculture for Technical Working Group SAP



GOVERNMENT OF SINDH
PLANNING & DEVELOPMENT DEPARTMENT

NOTIFICATION

NO. SO (A-I)/P&D/12(97)/12(PT-I) Government of Sindh is pleased to constitute a working Committee for Technical working Group (TWG) to finalize Agriculture, Supply & Prices Department's recommendations for Sindh Agriculture Policy and Implementation Strategy with the following composition and TORs:

1.	Mr. Mohammad Hashim Laghari, Former Secretary to Government of Sindh, Agri/Irrigation	Chairman
2.	Dr. Haji Khan Keerio, Former Director General, Agriculture Research	Member
3.	Dean, Faculty of Agriculture Social Sciences, Sindh Agriculture University Tando Jam	Member
4.	Director General Agriculture Engineering & Water Management	Member
5.	Director General Agriculture Extension	Member
6.	Director General Agriculture Research	Member
7.	Representative of Sindh Seed Corporation	Member
8.	Representative of PCU, SAGP, P&D Department	Member
9.	Project Director, SAGP (Agriculture Component)	Member/ Secretary

Terms of Reference:-

- To discuss and give input for setting objectives and targets for the sector and to do SWOT analysis.
- To propose options and strategies for implementation of the Policy and Strategy.

Mohammad Waseem
ADDITIONAL CHIEF SECRETARY (DEV.)

NO. SO (A-I)/P&D/12(97)/12(PT-I)

Karachi Dated: October 10, 2016.


A copy is forwarded for information to:-

- The Chairman, Technical Working Group Greenwich University, Karachi.
- The Secretary to Government of Sindh, Finance Department, Karachi.
- The Secretary to Government of Sindh, Agriculture Department, Karachi.
- The Secretary to Government of Sindh, Irrigation Department, Karachi.
- The Secretary to Government of Sindh, Forest, Environment, Wildlife and Coastal Development Sindh, Karachi.
- The Senior Chief (Agriculture/Livestock), Planning & Development Department Karachi.
- The Members (all) of Working Committee.

Mohammad Waseem
SECTION OFFICER (ADMN-I)
PHONE: 021-99211926



Notification of Working Committee of Livestock for Technical Working Group SAP



**GOVERNMENT OF SINDH
PLANNING & DEVELOPMENT DEPARTMENT**

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NOTIFICATION

NO. SO (A-I)/P&D/12(97)/12(PT-I) Government of Sindh is pleased to constitute a working Committee for Technical working Group (TWG) to finalize Livestock & Fisheries Department's recommendations for Sindh Agriculture Policy and Implementation Strategy with the following composition and TORs:

1.	Dr. Baz Mohammad Junejo, Former Secretary Livestock & Fisheries Department	Chairman
2.	Dr. K.B Mirbahar, Vice Chancellor, SBBUV&AS, Sakrand	Member
3.	Dr. Ghulam Sarwar Shaikh, Former Director General Livestock	Member
4.	Dr. Jai Mal Dahani, Prominent Expert	Member
5.	Dr. Noor Mohammad Soomro Dean, Animal Husbandry & Veterinary Sciences, SAU Tando Jam	Member
6.	Director General Fisheries Sindh	Member
7.	Director General Livestock Sindh	Member
8.	Representative of PCU, SAGP, P&D Department	Member
9.	Project Director, SAGP (Livestock Component)	Member/ Secretary

Terms of Reference:-

- To discuss and give input for setting objectives and targets for the sector and to do SWOT analysis.
- To propose options and strategies for implementation of the Policy and Strategy.

**Mohammad Waseem
ADDITIONAL CHIEF SECRETARY (DEV.)**

NO. SO (A-I)/P&D/12(97)/12(PT-I) Karachi Dated October 10, 2016.

A copy is forwarded for information to:-

- The Chairman, Technical Working Group Greenwich University, Karachi.
- The Chairman, Sindh Public Service Commission, Hyderabad Sindh.
- The Secretary to Government of Sindh, Finance Department, Karachi.
- The Secretary to Government of Sindh, Agriculture Department, Karachi.
- The Secretary to Government of Sindh, Irrigation Department, Karachi.
- The Secretary to Government of Sindh, Forest, Environment, Wildlife, and Costal Development Sindh, Karachi.
- The Senior Chief (Agriculture/Livestock), Planning & Development Department, Karachi.
- The Members (all) of Working Committee.

SECTION OFFICER (ADMN-I)

9/12

13/10/16
13/10/16
13/10/16
13/10/16

List of Participants of First (1st) Meeting of Technical Working Group (TWG) for Formulation of Sindh Agriculture Policy held on Thursday 14th April, 2016 at 11:00 a.m. at Greenwich University Campus, Karachi.

A. Government of Sindh Departments / Organizations / Academia / Universities:

- | | | |
|-----|-----------------------------|---|
| 1. | Dr. A.Q. Mughal, | Chairman, Technical Working Group /
Former V.C, SAU Tandojam. ---In Chair--- |
| 2. | Dr. Fateh M. Marri, | Project Coordinator, PCU-SAGP, P&D, Department. |
| 3. | Mr. Muhammad Ramzan Awan, | Secretary, Livestock & Fisheries Department. |
| 4. | Mr. Daud Khan, | Consultant, FAO, World Bank, Focal Person (AGS/P). |
| 5. | Mr. Shahabuddin Memon, | Senior Chief, Livestock Section P&D Department). |
| 6. | Engr. Abdul Fattah Tunio, | Senior Chief Agriculture Section (P&D Department). |
| 7. | Mr. Shahjahan Hashmani, | Project Director, SAGP-A, Hyderabad. |
| 8. | Dr. Nazeer Hussain Kalhoro, | Project Director, SAGP-L, Hyderabad, |
| 9. | Dr. Fateh M. Soomro, | Dean, S.B.B. University of Veterinary A.S. , Sakrand |
| 10. | Mr. Deedar A. Bhutto, | Director, Agriculture Information, Hyderabad. |
| 11. | Dr. Mushtaq Jokhio, | Director, Animal Husbandry, Livestock Department. |
| 12. | Dr. Noor-un-Nisa Mari, | Deputy Director, H.Q, Livestock Department. |
| 13. | Dr. Abdullah Sethar, | Deputy Project Director, PMU-SAGP-L. |
| 14. | Mr. Muhammad Azam Solangi, | Deputy Director, Agriculture Research, Tandojam. |
| 15. | Mr. Shakeel Ahmed, | Deputy Director, Monitoring Cell, Irrigation Deptt. |

B. Agriculture Sector / Civil Society / Progressive Farmers:

- | | | |
|-----|---------------------------|--|
| 16. | Dr. Nadeem Qamar | President, Sindh Chamber of Agriculture. |
| 17. | Mr. Khair Muhammad Junejo | Former Federal Misniter/ Progressive Grower. |
| 18. | Mr. Mahmood Nawaz Shah | Vice President, Sindh Abadgar Board. |
| 19. | Mr. Arif Mahessar | Convener Rice Focal Group, Progressive Farmer. |
| 20. | Mian Muhammad Saleem | Convener Chili Focal Group / Progressive Grower. |
| 21. | Mr. Muhammad Jameel | Member, Dairy Focal Group, Progressive Farmer. |

C. Special Invitees:

- | | | |
|-----|--------------------------|--|
| 22. | Ms. Tahira Syed | Task Team Leader, SAGP, World Bank, Washington. |
| 23. | Mr. Patrick T. Evans, | Country Representative, UN-FAO, Islamabad. (VLink) |
| 24. | Dr. Safiullah Khokhar | Consultant, UN-FAO, World Bank, Washington. |
| 25. | Mr. Stephen Davis | IFPRI Representative, Islamabad. |
| 26. | Mr. Muhammad Umer Karim, | Water Resources Management Specialist, UN-FAO,
PMCA/WSIP, Karachi |

List of participants of Second Meeting of Technical Working Group for formulation of Sindh Agricultural Policy and Implementation Strategy, held on 29th March 2017

D. Government of Sindh, Departments / Organizations / Academia / Universities:

1. Mr. Sohail Anwar Siyal,	Minister for Agriculture, Supply & Prices, GoSindh
2. Mr. Muhammad Ali Malkani,	Minister for Livestock and Fisheries, GoSindh
3. Dr. A. Q. Mughal,	Chairman TWG, Agriculture Policy
4. Dr. Saeed Ahmed Mangnejo,	Secretary, Agriculture, Supply & Prices Department
5. Dr. Fateh M. Marri,	Project Coordinator, SAGP
6. Mr. Hashim Leghari,	Chairman Technical Working Committee on Agriculture
7. Dr. Baz Muhammad Junejo,	Chairman Technical Working Committee on Livestock
8. Engr. Abdul Fattah Tunio	Member, Natural Resources
9. Mr. Shahabuddin Memon,	Senior Chief (S&F)
10. Mr. Aijaz A. Nizamani,	Chief Conservator of Forests, Government of Sindh
11. Mr. Noor Muhammad Baloch	DG Agriculture Research Sindh
12. Mr. Hidayatullah Chhajaro	DG Agriculture Extension Sindh
13. Dr. Ali Akbar Soomro	Director General, Livestock Sindh
14. Mr. Ghulam Muhammad Mahar,	DG Fisheries, Sindh
15. Mr. Khawar Pervez Awan	Director Fisheries
16. Mr. Shahjahan Hashmani	PD Agriculture, SAGP
17. Dr. Nazeer Hussain Kalhoro	PD Livestock, SAGP
18. Dr. Javed Memon	DPD, SAGP (L)
19. Dr. Abdullah Sethar	DPD, SAGP (L)
20. Dr. Nisar A. Memon	Director M&E WSIP
21. M. Ameen Memon,	Program Officer (Policy), PCU, SAGP
22. Mr. Shamsuddin Memon	Consultant PIC (Agriculture), SAGP
23. Dr. Kazi Suleman	Team Leader, M&E Consultants, SAGP
24. Dr. Muhammad Hussain Shaikh	Registrar SBBUVAS
25. Prof. M. Maqbool Memon	Dean, SBBUVAS Sakrand
26. Dr. Fateh M. Soomro	Professor and Dean, SBBUVAS Sakrand
27. Dr. Waqar	Associate Professor of Agri-business, Sukkur IBA
28. Dr. Suresh Rajput	Assistant Professor, Sukkur IBA

B. Agriculture Sector / Civil Society / Progressive Farmers:

29. Dr. Shahzado Khan	President Sindh Chamber of Agriculture
30. Mr. Kabool M. Khatian	Vice President, Sindh Chamber of Agriculture
31. Mian M. Saleem	Focal Person Chili Value Chain SAGP
32. Mr. Ghulam Qasim Jiskani	Focal Person Date Value Chain SAGP
33. Mr. Mahmood Nawaz Shah	Focal Person Onion Value Chain, SAGP/ GS SAB
34. Mr. Jamil Memon,	Owner Sindh Dairy Livestock & Breeding Farm
35. Rizwan Odho	Convener Rice Focal Group
36. Mir Ali Hassan	Member Rice Focal Group
37. Mr. Akhtar A. Hai,	Expert/ gender & poverty aspects of agricultural development
38. Ms. Somaya Memon	Expert for Agriculture & Climate Change
39. Ambreen Gilani	Advisor, Chemonics Intl.
40. Fawad H. Khan	Technical Advisor, Chemonics Intl.

C. Special Invitees

41. Mr. Jaafar Friaa	Program Leader, World Bank
42. Ms. Tahira Syed,	Task Team Leader SAGP, World Bank
43. Mr. Nazar Hussain Mahar,	Consultant, World Bank
44. Dr. Saifullah M. Khokhar,	Consultant, World Bank
45. Ms. Sarah Parvez,	EGA Advisor, USAID
46. Mr. Saqib Khan,	Agriculture Specialist, USAID
47. Muhammad Umer Karim	WRMS / Agriculture Engineer, UN-FAO, PCMU-WSIP, Karachi

List of participants for Provincial Consultation for Formulation of Sindh Agricultural Policy and Strategy, held on 21st September, 2017

A. Government of Sindh, Departmental Heads, Officers & Officials:

1. Mir Hazar Khan Bijarani, Senior Minister, Planning & Development Department, GoSindh,
2. Mr. Sohail Anwar Siyal, Minister for Agriculture, Supply & Prices, GoSindh
3. Mr. Muhammad Waseem, Chairman, P&D Board, P&D Department, GoSindh.
4. Dr. Shereen Mustafa, Secretary to GoSindh, (Planning) P&D Department.
5. Ms. Rehana Memon, Secretary to GoSindh, (Development) P&D Department.
6. Mr. Sajid Jamal Abro, Secretary to GoSindh, Agriculture, Supply & Prices Department.
7. Mr. Mukhtar Hussain Soomro, Secretary, to GoSindh, Livestock & Fisheries Department.
8. Mr. Abdul Fatah Tunio, Senior Chief (Agriculture) P&D Department, GoSindh.
9. Mr. Shahabuddin Memon, Senior Chief (L&F), P&D Department, GoSindh.
10. Agha Abdul Qadir Tareen, Additional Secretary (T) to GoSindh, Agriculture Department.
11. Dr. Fateh M. Marri, Project Coordinator, PCU-SAGP, P&D Department.
12. Mr. Daud Khan, Principal Author / Policy Consultant, PCU-SAGP, P&DD.
13. Mr. Mahboob-ul-Haq, MD, Sindh Enterprise Development Fund, SBI, Karachi
14. Mr. Muhammad Rafique, Advisor (WDC), Irrigation Department.
15. Mr. Jamal Mangan, Project Director, WSIP, SIDA.
16. Mr. Muhammad Saleem Jalbani, Chief EPR / SDGs, P&D Department, GoSindh.
17. Mr. Muhammad Ramzan Baprani, Director General, AE WM, Agriculture Department, GoSindh.
18. Dr. Ali Akbar Soomro, Director General, Livestock, Livestock & Fisheries Department.
19. Mr. Nazir A. Memon, General Manager Transition, SIDA.
20. Mr. Hidayatullah Chhajaro, Project Director, SAGP (Agriculture Component).
21. Dr. Nazir Hussain Kalhoro, Project Director, SAGP (Livestock Component).
22. Mr. Muhammad Azam Channa, Director PMC, Agriculture Department.
23. Mr. Shakeel Ahmed Rahimoon, Director, AE & WM, Agriculture Department.
24. Mr. Deedar Ahmed Bhutto, Director, Agriculture Information, Agriculture Department.
25. Dr. Nisar Ahmed Memon, Director (M&E), PCMU-WSIP, P&D Department.
26. Mr. Nazeer Hussain Mughal, Director (Coordination & Engineering), PCMU-WSIP, P&D Deptt:
27. Mr. Ghulam Mustafa Ujjan, Environment & Social Safe Guards Specialist, SIAPEP, Agri. Deptt
28. Mr. Ali Ahmed Channa, Director, Bureau of Statistics, P&D Department.
29. Dr. Wali Muhammad Baloch, Director, Agriculture Research Institute, Tandojam.
30. Mr. Aftab Solangi, Chief M&E, PMU-SAGP (Agriculture Component).
31. Mr. M. Farrukh Ghias, Director, PIU, SAGP (Agriculture Component), Mirpurkhas.
32. Mr. Nasir Ali Panhwar, Social Safeguards Specialist, SRP, Irrigation Department.
33. Mr. Akhtar Hussain Memon, Assistant Chief (Agriculture), P&D Department.
34. Mr. Shakeel Ahmed, Deputy Director, PMC, Agriculture Department.
35. Mr. Aslam Jarwar, Deputy Director (Fisheries), L&F Department.
36. Mr. Naveed Channa, Procurement Specialist, PCU-SAGP, P&D Department.
37. Mr. Abdul Basit Khan, Deputy Director (Environment), PCMU-WSIP, P&D Department.
38. Ms. Marium Minhas Band-ay-Ali, Deputy Director (Training & Communication), PCMU-WSIP P&DD.
39. Mr. Habib Ahmedani, Deputy Director (Agriculture Economist), PCMU-WSIP, P&DD.
40. Mr. Qamaruddin Gaho, Manager (Admin & Fin.), PCMU-WSIP, PCU-SAGP, P&D Deptt.
41. Mr. Leman Kumar, Deputy Director (Technical), Agriculture Research Department.
42. Mr. Ghulam Akbar Malik, Technical Specialist, PCMU-WSIP, P&D Department.
43. Ms. Fareeha Mahar, Assistant Director (Procurement) PMO-SBIP, Irrigation Department.
44. Mr. Shahab Bughio, Environment & Social Safe Guards Officer, SAGP, Agri. Deptt.
45. Dr. Gul Muhammad, Scientific Officer, Arid Research Institute, Umerkot.
46. Mr. Islam-u-Din Rao, ADA, HQ, Badin.
47. Mr. Fahad Zubair, Junior Procurement Specialist, PCU-SAGP, Agriculture Department.

B. Academic & Research Institutions

48. Dr. Bakhshal Khan Lashari, Head, PCAS (W), Mehran University of Engineering & Technology.
49. Prof. Aijaz Qureshi, Development Professional, Veteran Educationist.
50. Dr. Ismail Kumbhar, Representative, Sindh Agriculture University, Tandojam.
51. Mr. Roshan Ali Shah, Research Economist.

C. Farmer's Representatives / Value Chain Experts

52. Mr. Abdul Majeed Nizamani,	President, Sindh Abadgar Board.
53. Mr. Ghulam Qasim Jiskani,	Former Federal Minister, Dates Value Chain Focal Group.
54. Syed Mahmood Nawaz Shah,	Vice President, SAB, Onion Value Chain, Focal Group.
55. Mr. Kabool Muhammad Khatian,	Vice President, Sindh Chamber of Agriculture.
56. Maj. (R), Umer Farooq,	Chairman, Left Bank Canal Area Water Board, Badin.
57. Mr. Nabi Bux Sathio,	General Secretary, Sindh Chamber of Agriculture.
58. Syed Abdul Karim Talpur,	Information Secretary, Sindh Chamber of Agriculture.
59. Mr. Aslam Baloch,	Member, Sindh Abadgar Board.
60. Mr. Arif Hussain Mahessar,	Rice Value Chain Focal Group.
61. Mr. Manthar Ali Jaoti,	Milk Value Chain, Focal Group.

D. Development Partners & Civil Society

62. Ms. Katrien Hoos,	Deputy Country Director, World Food Programme, Pakistan.
63. Ms. Genevive Hussain,	FIRST Policy Officer, European Union assisted, UN-FAO, Karachi.
64. Mr. Nazar Hussain Mahar,	Senior Advisor, World Bank, Pakistan.
65. Mr. Noor Muhammad Memon,	Individual Consultant, Veteran Policy Expert.
66. Mr. Johannes G. P. Jansen,	Senior Agriculture Economist, World Bank, Pakistan.
67. Mr. Lixin GU,	Program Leader, World Bank, Pakistan.
68. Mr. Shamsuddin Memon,	Consultant, PICs, PMU-SAGP, Agriculture Component
69. Mr. Saleh Mangi,	Team Leader, PICs, SAGP Livestock Component.
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