

Growth for Rural Advancement and Sustainable Progress

Quality and sanitary and
phytosanitary regulatory frameworks
of Balochistan and Sindh

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The report was developed during the inception phase of the GRASP project to inform internal discussions at ITC to develop and finalize the project's activities related to the quality and SPS (and TBT to some extent) related regulatory and institutional frameworks in Pakistan in general, and in Balochistan and Sindh in particular.

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Acronyms

Unless otherwise specified, all references to dollars (\$) are to United States dollars, and all references to tons are to metric tons.

AQD	Animal Quarantine Department
BFA	Balochistan Food Authority
DPP	Department of Plant Protection
HACCP	Hazard Analysis Critical Control Points
ICTs	Information and Communication Technologies
ITC	International Trade Centre
IPM	Integrated Pest Management
MRL	Maximum Residue Limit
NAPHIS	National Animal and Plant Health Inspection Service
NPSL	National Physical Standard Laboratory
PS	Pakistan Standard
PSQCA	Pakistan Standards & Quality Control Authority
SAGP	Sindh Agricultural Growth Project
SFA	Sindh Food Authority
SFAR	Sindh Food Authority Regulations
SPS	Sanitary and Phytosanitary Measures
TBT	Technical Barriers to Trade
WTO	World Trade Organization

CHAPTER 1 INTRODUCTION

Growth for Rural Advancement and Sustainable Progress (GRASP) is a 66 month project designed to support poverty reduction and sustainable, inclusive economic growth in Pakistan by strengthening small-scale agribusinesses in two provinces: Balochistan and Sindh. GRASP is implemented by the International Trade Centre – a joint, specialized agency of the United Nations and the World Trade Organization – and funded by the Delegation of the European Union to Pakistan.

To achieve this objective, the programme will help MSMEs and agribusinesses in the horticulture and livestock sectors become more competitive by making improvements at all levels of the value chain – including in primary production, service provision and value addition in and around selected clusters of production".

GRASP is composed of the following, three, main result areas (Intermediary Outcomes):

1. Regulatory and institutional frameworks improved at federal and provincial levels for rural value chain and MSME development.
2. Productivity, quality, and sustainability of selected value chains in horticulture and livestock improved.
3. MSME commercialization within selected value chains improved.

Across all three components, GRASP will focus on empowering women by bringing them into the conversation, creating jobs and strengthening women's organizations.

Under Intermediate Outcome 1, GRASP will seek to improve the federal and provincial regulatory and institutional frameworks governing quality and sanitary and phytosanitary (SPS) measures – which includes food safety, plant protection and animal health – by designing policy reforms and deploying technical assistance and capacity building activities to enhance the competitiveness of MSMEs in rural Balochistan and Sindh. These activities include conducting regulatory impact analysis of laws, regulations and acts related to various areas of SPS and Technical Barriers to Trade (TBT) measures, improving conformity assessment bodies such as testing laboratories and simplifying compliance and certification procedures for rural MSMEs, developing science-based standards based on international best practices, and building the capacity of provincial institutions in Balochistan and Sindh to better enforce regulations and engage in training and awareness-raising of MSMEs.

This report has been commissioned during the inception period of the project to assess the quality and SPS regulatory and institutional frameworks (including the conformity assessment infrastructure) in Pakistan in general, and in Sindh and Balochistan in particular. This includes an assessment of the related laws, regulations, acts and policies at the national and provincial levels, the roles and responsibilities of federal and provincial institutions in regulating and in enforcing compliance, the capacities of testing laboratories and other conformity assessment bodies, the state of play of the standards being applied for GRASP priority products in Pakistan and in Balochistan and Sindh, identification of complementary projects and initiatives, challenges and weaknesses in the quality and SPS setups and recommendations and proposals for reforms that GRASP could undertake during the implementation phase of the project.

CHAPTER 2 QUALITY AND SPS-RELATED REGULATORY FRAMEWORK IN PAKISTAN

Pakistan is one of the founder Members of the WTO since 1995 and its predecessor organization the GATT. The WTO was established with a view to raise the standard of living, ensuring employment in large growing volumes of real income and effective demand, expanding the production of and trade in goods to ensure optimal use of world resources with the objective of sustainable development.

SPS Agreement

The Agreement on the Application of Sanitary and Phytosanitary measures (the SPS Agreement) entered into the force with the establishment of the WTO on 1st January, 1995. It concerns the application of food safety and animal and plant health.

The Agreement sets out the basic rules for food safety and animal and plant health standards. It allows countries to set their own standards provided the regulations are based on science and that they should be applied only to the extent necessary to protect human, animal or plant life or health and should not arbitrarily or unjustifiably discriminate between countries where identical or similar conditions prevail. Member countries are encouraged to use international standards, guidelines and recommendations where they exist. However, they can use measures which result in higher standards, if there is scientific justification. Countries can set high standards based upon appropriate assessment or risks so long as the approach is consistent not arbitrary.

The basic aim of the SPS Agreement is to maintain the sovereign right of any government to provide the level of health protection it deems appropriate. **The SPS Agreement also encourages governments to establish national SPS measures consistent with international standards guidelines and recommendations.** Article 3 of the Agreement refers to harmonization. It recognizes three sisters' organizations as international standard setting bodies viz; Codex Alimentarius (Food laws), the International Plant Protection Convention (IPPC for plant health) and the World Animal Health Organization (OIE for animal health).

SPS measures are defined, as any measure applied to:

- To protect animal or plant life from pests, diseases or disease-causing organisms,
- To prevent or limit other damage to a country from the entry establishment or spread of pest.

SPS measures typically deal with:

- Additives in food or drinks
- Contaminants in food or drink
- Poisonous substance in food or drink
- Residues of veterinary drugs or pesticides in food or drink
- Certification: food safety, animal or plant health
- Processing methods with implications for food safety
- Labeling requirements directly related to food safety
- Plant / animal quarantine
- Declaring areas disease free from pests or diseases
- Prevailing disease or pests spreading to a country
- Other sanitary measures for import

Current SPS management and official control in Pakistan

- Large country with diversified agro-food sector
- Complex distribution chain (small producers / intermediaries)

- Control system focus on end product sampling and testing
- Overlap in institutional responsibilities
- Weak co-ordination and implementation of controls

The UNIDO and World Bank undertook a comprehensive study in 2005-2006 of the SPS issues confronting Pakistan. The key findings of the mission were:

- Pakistan lacks a coherent strategy or set of strategies for quality and SPS management, whatever, strategy exists in pursued independently at the micro or business to business level.
- There is lack of coordination and effective collective action by many ministries.
- There is, if any effective, participation to the process of international standards setting either by the government or the private sector.
- Existing capacities for quality and SPS management do exist in selected pockets, within the non-traditional export sectors.
- The absence of a coherent strategy and adopting defensive posture.
- Non-compliance with existing and potential trade partner requirements.

The report (World Bank 2005) further advocated recommendations, which are categorized as follows:

- Awareness and recognition
- Application of basic good practices in hygiene and safety like GMP, GAP, HACCP, QM at farm level & enterprise level.
- Suitable & applied regulations
- Institutional structure & role clarity
- Technically demanding and risk management functions
- SPS diplomacy

Regulatory framework in Pakistan

Federal level: Dealing with food safety/SPS matters for import & exports

Provincial level: Dealing with food safety, animal husbandry and plant health issues with their respective jurisdiction (enforcement of SPS measures)

Federal level

Sr. #	Name of Department	Legal Framework	Functions
1	Ministry of Science & Technology		
1.a	Pakistan Standards & Quality Control Authority (PSQCA)	Pakistan Standards & Quality Control Authority Act, 1996	Matters relating to processed and manufactured items, services for their quality specifications and characteristics
1.b	Pakistan National Accreditation Council (PNAC)		National Accreditation Body for laboratories
			Regulate & accredit laboratories and certification bodies
			Halal Accreditation
1.c	Pakistan Council of Scientific and Industrial Research (PCSIR)		Food Testing and Analysis Calibration Services
2	Ministry of Commerce		
2.a	Pakistan Horticulture Development Company		Promotion of horticulture export including floriculture

3	Ministry of National Health Services & Regulations and Coordination		
3.a		Food policy and nutritional issues	Matters relating to food policy regulations of cross boundary movement of GMO
4	Ministry of National Food Security and Research (MNFS&R)		
4.a	Department of Plant Protection (DPP)	The Pakistan Plant Quarantine Act, 1976 (LXXV of 1976) The Pesticides Ordinance 1971	Plant Quarantine Phytosanitary certification of import and export of plants and plant material Pesticide registration.
4.b	Federal Seed Certification & Registration Department (FSC&RD)	The Seed Act, 1976 /2015	Seed and matters relating to its' quality, import testing and field experiments.
4.c	Animal Quarantine Department (AQD)	The Pakistan Animal Quarantine (Import and Export of Animals and Animal Products) Ordinance, 1978 (XLIX of 1979)	Regulate import and exports of animals and products based on animal related matters. Inspection and issuance of Health certificate
4.d	Marine Fisheries Department (MFD)	The Pakistan Fish Inspection and Quality Control Act, 1997 (XXXV of 1997) The Exclusive Fishery Zone Regulation of (Fishing) Act, 1975	Inspection, export certification of fish and fishery products.
4.e	Grain Quality Testing Laboratories (GQTL)		Quality testing of grain & food item.
4.f	National Veterinary Laboratory (NVL)		Quality testing of Veterinary Products Quality control test on vet products, biological material, feed and food stuff. Perform diagnostic tests.
4.g		The Agricultural Produce (Grading & Marking) Act 1937 (1 of 1937)	Grading of agricultural and livestock commodities meant for export Laying down grades and standards of agricultural and livestock commodities and their enforcement for export purposes.

The roles and responsibilities of the key federal ministries related to quality and SPS are listed in the table below:

Ministry of National Food Security & Research (MNFS&R)	Responsible for implementation, enforcing, developing policy on agriculture, rice, livestock and farming Import and export control on food grain and food stuff. Inspection, grading analysis of food grains and food stuffs and maintenance of standards of quality for import & export Plant quarantine. Standardization and import of pesticides. Seed testing and seed certification Grading of agricultural commodities for export. Laying down of national grades of livestock, poultry and livestock products. Inspection of livestock and livestock products for export. Inter-provincial trade.
Ministry of Science & Technology	Preparation of standards and matters relating to processed and manufactured items Labeling and packaging standards Dealing with processed and manufactured food safety measures and their quality standards.
Ministry of Commerce	Commercial & trading aspects of food items. Matters relating to agricultural products particularly horticulture, fruits and vegetables.
Ministry of National Health Services Regulation & Co-ordination (NHSRC)	Improve health status of people Enforcement of Drug Laws & Regulations Improve health of the population
Ministry of Ports and Shipping	Regulate export of fish and fishery products.

Initiative to Achieve National Objectives on SPS Measures

Food Security and access to safe nutritious food is a fundamental human right and that it is the responsibility of the State to ensure that this right is upheld. Food safety is an important component of the Food Security and with the implementation of the WTO regime it has gained more importance. To ensure food safety effective measures have to be undertaken at all levels of the food chain; from production to storage, supply distribution and its' consumption. The farm to fork approach has to be adopted on scientific basis and risk management. All the stakeholders including business operators and the regulatory authorities need to assume the responsibility of supply of safe food to the consumers be it domestic or international markets.

To achieve this objective the Ministry of National Food Security & Research Government of Pakistan has prepared a "Bill" aimed to establish a National Food Safety, Animal and Plant Health Regulatory Authority in the country. The Bill has been prepared after extensive consultative process at federal & provincial level and with the assistance of an international SPS management expert, whose services were provided under an EU funded TRTAll Programme, implemented by UNIDO.

The Bill has been submitted to the National Assembly in 2016, after vetting by the Law Division and with the approval of the Cabinet. It aims to provide a coherent and integrated SPS management and official system in the country in line with best international practices. The Bill also provides for close cooperation and coordination between the Federal authority and the Provincial Governments for effective border control of food and feed, animal and plant material entering into or going out of the country with help of inspection and quality certification measures. The establishment of a NFSAPHRA will be a vehicle to achieve the national goal of "Trade, Not Aid". It will help minimize rejections of our agro-based consignments at foreign destinations and at the same time ensure supply of safe food to our domestic consumers.

Provincial level

Since independence in 1947, provincial health departments were responsible to ensure the sale of pure food in their area of jurisdiction in accordance to powers assigned through pure food laws. Whereas, **PSQCA** is a federal body, holding its mandate to control around 40 food items listed in a mandatory items list notified through Gazette of Pakistan. There was no conflict between the federal and provincial laws, until the framing of the Punjab Pure Food Rules (PFR) 2007, which repealed the Punjab Pure Food Rules 1965 and framed and enforced new standards applicable in the province of Punjab. **Punjab Food Authority** came to existence under these rules. Thereafter, the Punjab PFR, 2007 were also repealed by the Punjab PFR, 2011. Currently Pure Food Regulations 2018 are in force in the Punjab province. Meanwhile after an amendment in constitution of Pakistan by virtue of the Constitution (18th Amendment) Act, 2010 on April 19, 2010, the regulatory control of food safety and quality became the essential responsibility of provincial governments.

In order to regulate food safety in Sindh province, **Sindh Food Authority** was established in year 2017 under the Sindh Food Authority Act, 2016 (Sindh Act No. XIV of 2017). In the province, Sindh Food Authority Regulations, 2018 are the relevant food safety regulations where around 100 food standards developed by PSQCA with all of their requirements have been directly adopted. In case of unavailability of PSQCA standard for a particular food, the Codex Alimentarius standards are adopted.

Khyber Pakhtunkhwa Food Safety and Halal Food Authority came into existence under an act passed in 2014 (KP Act No. X of 2014). This authority has its jurisdiction spread over the Khyber Pakhtunkhwa province. The current version of KP (Food Standards) Regulations was framed and enforced in year 2018.

In Baluchistan province, a bill was passed in year 2014 by the Provincial Assembly of Baluchistan and an act was notified to establish **Baluchistan Food Authority**. The Baluchistan Food Authority Act, 2014 (Act No. VI of 2014) has repealed The Baluchistan Pure Food Ordinance 1960 (Ordinance No. VII of 1960). However, it has been notified that the earlier issued rules (PFR 1965) shall continue to be in force and deemed to have been in force until it has not been repealed in accordance with the provisions of this act.

Azad Jammu and Kashmir (AJK) Food Authority has recently been established. However, AJK region is following Punjab standards as most of the food items are being supplied from Punjab province to AJK.

In **Gilgit-Baltistan region** Pure Food Ordinance 1960 is in force and the food safety setup is based on Pure Food Rules 1965. Quite recently activities have been initiated in region to modernize the food safety regulatory frame work. Legislation is ready to be introduced in assembly for approval and to repeal earlier version of food laws.

Quality standards specifications for local sale of fruits and vegetables and meat

In **national standards** formulated by PSQCA the standards for fruits, vegetables and meat are available and can be used voluntarily in the country as a reference standard while finalizing the terms of business contracts.

The quality of food is in fact being controlled by mentioned **provincial food safety authorities**. There exist detailed specifications for quality standards for local sale of fruits, vegetables and meat. Parameters described for these foods in the provincial regulations are as following:

1. Pesticide Residues
2. Heavy Metals
3. Microbiological Limits
4. Physical Specs.
5. Additives used in Processing

Apart from food authorities, other provincial departments responsible for enforcing quality and SPS regulations to ensure plant and animal health are:

- Provincial Agriculture Extension Departments
- Provincial Departments of Agricultural Marketing
- Provincial Livestock Departments
- Provincial Directorates of Animal Health
- Provincial Fisheries Department
- Provincial Directorates of Plant Protection

These are explained in more detail in subsequent chapters for Balochistan and Sindh.

Inconsistencies in standards in provinces

There is at present no federal law on food safety which has resulted in non-coherent standards across provinces, as was explained above. The standards on food safety are conspicuous by their absence, which is creating confusion both in import / export of food items and in uniform interpretation of food safety laws/standards within the country resulting into inconsistency in the application of standards by the provinces (while Sindh has adopted Pakistan standards, Balochistan is bent towards following those from Punjab). Whatever standards that exist are not based on risk analysis/assessment and Lack of traceability of produce/products is evident

Global Agricultural Information NetWay (GAIN), USDA Foreign Agricultural Services in its' report on Food & Agricultural Import Regulations and Standards (FAIRS Country Report Pakistan) has highlighted that Pakistan's food imports are regulated by the federal government and food safety standards are regulated by the Provincial Governments. As a result of devolution, the provincial governments are developing their own different SPS regulations, which is beginning to introduce inconsistency in regulations across the country.

National quality policy of Pakistan

In Pakistan, Ministry of Science and Technology (MoST) is the apex body encompassing major organizations belonging to National Quality Infrastructure (NQI). These organizations are:

National Accreditation Body:	Pakistan National Accreditation Council (PNAC)
National Standard Body:	Pakistan Standard and Quality Control Authority
National Quality Control Authority:	(PSQCA)
Testing Organization:	Pakistan Council of Scientific and Industrial Research (PCSIR)

Considering the importance, two drafts on National Quality Policy were prepared by MoST in years 2004 and 2013. These policy documents are highly valuable papers. Whereas Ministry of Planning, Development, and Reform, Government of Pakistan coined an initiative on Productivity, Quality, Innovation (PQI in 2018. These documents are elaborated as below.

Draft National Quality Policy & Plan (2004)

A draft National Quality Policy & Plan was prepared by Pakistan National Accreditation Council (PNAC) in February 2004. One of many objectives of the policy and plan was to develop strong quality infrastructure through strengthening and upgradation of metrology, standardization, testing and quality assurance (MSTQ) setup, formulation and effective enforcement of technical regulations.

The NQP&P objectives are:

- To clearly define the government's commitment to create an environment that allows initiatives, which promote the best quality practices in all sectors of the economy.
- To develop strong quality infrastructure through strengthening and upgradation of Metrology, Standardization, testing and Quality assurance (MSTQ) setup, formulation and effective enforcement of technical regulations.
- To take measures for the improvement of product quality and services.
- To improve productivity through training and education and establishment of data banks.
- To upgrade technology through R & D in key sectors, reorganization of R & D institutions and establishing cluster councils.

- To create awareness and develop human resources, in the field of quality through seminars and courses to prepare our industries and other sectors to meet the challenges of New World Trade Order.
- To protect the rights of the consumers through developing an effective regulatory mechanism, product certification and other conformity assessments schemes.

The plan suggested a budgetary allocation of around Rs. 10 billion for implementation of NQP & P. However, this document could not be adopted or approved.

Final Working Draft of the Pakistan National Quality Policy (2013)

The Ministry of Science and Technology (MoST) established a Working Group including members from National Quality Infrastructure (NQI) organs and the Ministry of Commerce to draft the text of the National Quality Policy under the guidance of UNIDO. A Final Working Draft of the Pakistan National Quality Policy (2013) was developed as an input towards achieving the objectives of the Trade Related Technical Assistance Programme II (TRTA II) funded by the European Union. This draft elaborates and performs situational analysis of National Quality Infrastructure, Technical Regulations Framework and Policy Environment. In order to undertake the quality related functions in the country, Pakistan National Quality Policy draft suggests the structural and functional reforms in related institutions with special focus on PSQCA. It suggests the avoidance of overlapping among various NQI organizations. The main theme of this policy document is to facilitate the country to fulfill its global commitments for quality driven trade activities. This policy demonstrates Pakistan's willingness to adhere to WTO agreements under SPS/TBT measures. The key elements of the Policy are metrology standardization, accreditation and conformity assessment (testing, inspection, system certification and product certification).

The suggested objectives of policy were:

- To ensure the quality culture in production and processing activities.
- The design and establishment of an internationally recognized quality infrastructure appropriate for the needs of Pakistan.
- Strengthening of the technical regulation regime through the implementation of a national Technical Regulation Framework and the establishment of cooperation amongst the NQI institutions and the national regulatory authorities, and with their international counterparts.
- To develop the human resources necessary to support the various standardization, quality and technical regulation programs.
- To foster a quality culture in public life and throughout society.

In order to achieve these objectives a budget of Rs. 764.5 Million was also suggested. The NQP was approved by MoST and presented to the Prime Minister's Cabinet for consideration, approval and implementation.

Pakistan Productivity, Quality, Innovation (PQI) Initiative (2018)

Pakistan Productivity, Quality, Innovation (PQI) Initiative was launched on April 20, 2018 by Ministry of Planning, Development, and Reform, Government of Pakistan. It has been envisioned that through the course of the next couple of years, Ministry of Planning, Development, and Reform will work with other key stakeholders – Ministries of Science and Technology, Industries and Production, Higher Education, and others to work with 5 Pilot Sectors – Surgical Instruments, Food Processing, Trucking, Value Added Textiles, and Gems and Jewelry – to implement a programme of PQI Improvements. The project will ultimately be scaled to 20-25 priority sectors in the future.

The vision defined for PQI is to become a globally acknowledged Centre of Excellence, work in multidisciplinary action-oriented policy research on all aspects of rural economy.

Whereas the key objectives of the project are:

- Development of a PQI Framework and PQI Policy
- Mass awareness campaign on Productivity, Quality and Innovation (PQI)

- Pilot training programs leading to productivity improvement
- Initiate Prime Minister Excellence Award

Need for National Quality Policy

In order to meet global quality requirements, there is dire need to approve and implement a National Quality Policy in Pakistan. There are two drafts available with Ministry of Science and Technology, which can be used as the basic document for formulation of a comprehensive plan for development and implementation of NQP. Recently coined PQI initiative by Ministry of Planning, Development, and Reform can provide a platform for such intervention as it has the provision to develop policy for productivity, quality and invention.

CHAPTER 3 CONFORMITY ASSESSMENT SITUATION IN PAKISTAN

The food quality, animal and plant health conformity requirements are inconsistent for local sale and export sectors in Pakistan. These sectors are being regulated by authorities with entirely separate controls. The role of laboratory support for achieving the quality and safety perspective of the trade is yet to be aligned with global needs. In the below given text the role of regulator and laboratory support for local sale and export sectors are discussed separately due to their versatile nature.

Fruits and vegetables testing laboratories

There are 10 accredited food testing laboratories in Pakistan, offering testing service for fruits and vegetables commodity. Whereas small number of non-accredited public labs are also working in the similar testing area. Among accredited labs six (6) labs belong to public sector and all three (3) non-accredited labs are in governmental control.

Pesticide residue testing is the basic SPS criteria to be observed for majority of export consignments of fruits and vegetables. A compliance certificate from a public sector lab can only satisfy this requirement. In this regard PCSIR, Karachi, Industrial Analytical Center, ICCBS Karachi and Grain Quality Testing Lab, Karachi is offering these testing and analysis facilities in fruits and vegetables sector in Sindh and Balochistan. NIAB, Faisalabad, PCSIR Labs. Complexes, Lahore and Peshawar are serving the fruits and vegetables sector in Punjab and KPK region. Whereas heavy metals, microbiological and nutrition analysis services are available at all of these labs. In this sector no known business preference is given to private sector labs by exporters.

Grading of fruits and vegetables

Earlier than the partition, on the basis of demand and supply mechanism as well as quality of produce, the prices of fruits and vegetables are determined by the **Market Committees**. These are working under different provincial departments:

Sindh:	Agriculture, Supply and Prices Department,
Punjab:	Directorate of Agriculture (Economics and Marketing)
KPK:	Agriculture, Livestock and Cooperation Department
Balochistan:	Directorate of Agriculture (Economics and Marketing)

Overall system for quality determination in rice and fruit and vegetables by market committees is not supported with any laboratory infrastructure.

Meat testing laboratories

Pakistan is exporting meat to GCC countries in the significant number of consignments. A number of labs are available in the country to offer quality testing services for these consignments (Table 4). Meat and allied stuff is being controlled at the points of exit by Animal Quarantine Department (AQD), Ministry of Food Security and Research. It is pertinent to mention that majority of meat is being sold as chilled meat having very short shelf life. Therefore time consuming lab analysis is practically not feasible. There are a small number of labs having distinctive role in disease control in poultry and livestock sector. Their business domain is therefore separately defined.

Provincial food authorities' laboratories

The details of laboratories infrastructure available with provincial food authorities is given below:

Punjab

In Punjab province laboratory set up exist to undertake testing jobs assigned for the samples collected by the food safety team. Laboratories of the Punjab Food Authority (PFA) are able to identify the safety and quality parameters of wide variety of food in line with the Punjab Pure Food Regulations, 2018. Establishment of Mobile Food Laboratories took place recently that reach out to consumers through as many touch points as possible to help in on-the-spot testing of food items and curb adulteration. The PFA Food Laboratory consists of the following sections offering testing service for various commodities:

Sr. No	Sections	Commodities
1	Water and Microbiology Section	Water Analytical Testing, Water Microbiological Testing, Food Microbiological Testing
2	Fat and Oil Section	Oil, Cooking Oil, Banaspati Ghee, Honey,
3	Dairy Section	Cheese, Powdered Milk, Butter, Ice Creams, Kulfi, Frozen Desert, Tea Whitener, Sweets, Milk, Paneer, Khoya, Chocolate
4	Beverages Section	Fruit Drinks, Carbonated Drinks, Juices, Tea, Nectar, Pulp (Fruits & Vegetable), Syrups
5	Fruits and Vegetable Section	Fruits & Fruit Products, Vegetables & Vegetable Products, Sauces, Tomato Ketchup, Jam, Jellies, Fruit Chutney, Murabba, Pickle, Canned Food
6	Cereals and Spices Section	Spices, Mix Masala, Cereals, Confectionary, Sugar, Ready To Eat Savories, Bakery Wares, Seasonings and Condiments, Salt, Egg, Artificial Sweeteners

Sindh

Sindh Food Authority was made active in 2018 whereas Food Safety Officers were recruited in initial part of 2019. Recruitment of a few laboratory staff members has been done, however very basic laboratory facilities are available at present. Instead some private and public labs are being used for third party laboratory services for SFA.

Balochistan

Balochistan food authority has started staff recruitment including appointment of top rank officials from civil service. Field operational activities are initiated in previous few months. These activities are based on compliance to the general SOPs and hygiene sanitation regulations. Laboratory facilities are not available at the moment.

Khyber Pakhtunkhwa

KPK Food Authority has become operational with hiring of relevant staff. Laboratory facility is available with authority. Three types of food laboratories have been established recently (Scientific Laboratory, Appellate Laboratory & Mobile Laboratory). Mobile milk testing laboratory has recently been introduced to assure the milk quality in province. Services of private and public sector laboratories are also being utilized for the samples collected and submitted by KPK food authority when required.

Other laboratories

There exist some other laboratories in Pakistan offering services in food sector, however due to very limited role in fruits, vegetables, meat and textile testing segment, the services of these labs have not been elaborated in this text. These labs are Nuclear Institute of Food and Agriculture Peshawar (NIFA), Qualitest Laboratory Services (Pvt.) Ltd. Karachi, Desto Laboratories Karachi, Laboratory of Marine Fisheries Department (MFD) Karachi.

Inspection bodies in Pakistan

In case of fruits and vegetables consignment sample drawing is the responsibility of either plant protection department or the consignee itself as per the contract requirement or prevailing quarantine law. In case of meat products samples are drawn and analysed by Animal Quarantine Department itself. Whereas for textile, fabrics and yarn etc. the inspection bodies are usually contracted and deputed to ensure the integrity of consignment on the behalf of foreign buyer. These inspection bodies are bound to ensure the product quality as per the specifications agreed by the parties engaged in the contract. These bodies as well as consignee have to get the textile products tested from authorized labs and submit the findings to the buyer for fulfillment of the requirements of trade agreement.

Various accredited inspection bodies are offering their services for pre-shipment inspection (PSI) of export consignments. These inspection bodies are working in compliance to ISO 17020:2012 standard which deals with conformity assessment and requirements for the operation of various types of bodies performing inspection are being fulfilled by these bodies.

Accredited inspection bodies working in the field of food

The major inspection bodies and their status description are given below:

Sr. No.	Laboratory	Inspection Accreditation Status (ISO 17020:2012)	Laboratory Accreditation Status (ISO 17025:2012)	Types of items inspected
1	Bureau Veritas Pakistan (Pvt.) Ltd., Government Services & International Trade (GSIT) Division House # 177, Block 7/8, Karachi Memon Cooperative Housing Society, Post Code# 75400, Karachi	Accredited w.e.f. 29.01.2010 Accreditation. No. IB 001, Type = A	Non- Accredited	Agricultural Products: i) Grain (Wheat, Rice, Corn, Pulses, etc.) 2) Crops: i). Grain Products (Cereals)
2	Inspectorate Pakistan (Pvt.) Ltd., 1st Floor, Lakson Square Building No.1, Sabir Beg Shaheed Road, Karachi-72400	Accredited w.e.f. 20.03.2012 Accreditation. No. IB 005, Type = A	Non-Accredited	Agricultural Products i. Livestock 1. Meat (Beef, Mutton etc) ii. Crops: 1. Grain (wheat, Rice, Corn, Pulses, oilseeds etc. B. Manufactured Goods: 1. Food and Beverages
3	Baltic Control Pakistan (Pvt) Ltd. Suite No. 419, The Cotton Exchange Building, 4th Floor, I.I Chandigarh Road, Karachi - Pakistan	Accredited w.e.f. 14.03.2018 Accreditation. No. IB 013, Type = A	Non- Accredited	A. Agricultural Products: 1. Crops: 1. Grain (wheat, Rice, Corn, Pulses, etc.) 2. Grain Products (Cereals, Snacks, Bakery Items, etc.) 3. Cotton fibre B. Manufactured Goods: 1. General Manufactured Goods
4	Pakistan Standards & Quality Control Authority (PSQCA) Standards Development Centre (SDC)	Accredited w.e.f. 10.06.2015 Accreditation. No. IB 008,	Accredited	Agricultural Products i. Livestock • Butter

Conformity Assessment Lahore Zone 125-A, Quaid-e-Azam Industrial Estate Kot Lakhpat, Lahore, Pakistan	Type = A		<ul style="list-style-type: none"> • Food for infants and children ii. Crops: <ol style="list-style-type: none"> 1. Wafers Biscuits 2. Biscuits (Excluding Wafer Biscuits)
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Other inspection bodies working in the field of food

The details of two of the major PSI bodies without accredited status are as below:

Laboratory	Inspection Accreditation Status (ISO 17020:2012)	Laboratory Accreditation Status (ISO 17025:2012)	Types of items inspected
SGS Pakistan H-3/3, Sector 5, Korangi Industrial Area, Karachi-74900	Non-Accredited	Accredited	Food items
Intertek Pakistan (Pvt.) Ltd Intertek House Plot No. 1-5/11-A, Sector -5, Korangi Industrial Area, Karachi	Non-Accredited	Accredited	Food items

Few other PSI bodies are also working for inspection of consignments. These are not accredited from PNAC for any scope till date. However, these are legal entities working under the existing regulations of the country e.g. Control Union Pakistan, Bhombal and Co. Surveyors, Pakistan Inspection Company etc.

National Accreditation Body - Pakistan National Accreditation Council (PNAC)

Pakistan National Accreditation Council (PNAC) was established in 1998 after signing WTO agreement by Government of Pakistan in 1995. The accreditation services of PNAC were launched during the year 2001.

Inspection Bodies Accreditation Scheme:

The Accreditation Scheme for Inspection Bodies provides official recognition of the integrity and reliability of an inspection body's services. PNAC launched this accreditation scheme in 2008, the Accreditation Scheme for Inspection Bodies aims to upgrade the standard of inspection activities to support sound decision-making with regard to safety, performance and reliability.

Laboratories Accreditation Scheme

In year 2004 PNAC (Pakistan National Accreditation Council) accredited first laboratory in Pakistan under ISO/IEC 17025 (General requirements for the competence of the testing and calibrations laboratories). During last 15 years PNAC has striven very hard to promote the culture of competence among laboratories. As a pioneer member of the Mutual Recognition Arrangement (MRA) of the Asia Pacific Laboratory Accreditation Cooperation (APLAC) and the International Laboratory Accreditation Cooperation (ILAC), testing reports issued by PNAC accredited laboratories are recognised worldwide by MRA members that span across more than 70 countries. Although accreditation under ISO 17025 is on voluntary basis, however enhanced global expectations and trade requirements have acted as a driving force for the laboratories to be accredited under the requirements of this standard. PNAC accredits laboratories that work in the field of microbiological, chemical, food, construction and construction products, electrical, environmental, textiles, petrochemicals, and pharmaceuticals testing. Till date 152 laboratories belonging to these fields have secured the valid accredited labs status from PNAC. At present in Pakistan, almost all the labs having major stake in the food and textile testing field are accredited by PNAC. Even the labs of major industries have also reached to this accreditation status. Only a few small labs being operated individually or by run by some inspection agencies have not been achieved this status.

CHAPTER 4 SPS AND QUALITY INFRASTRUCTURE IN BALOCHISTAN

Balochistan is one of the four provinces of Pakistan. It is the largest province in terms of land area, forming the South Western region of the country. Its' capital is Quetta. The total area of this province is 347190 Km² with a population of 12.34 million (2017). It ranks fourth among Pakistan's provinces by GDP (9.13 million US\$). Balochistan is an arid desert and mountainous region. It is bordered by Iran (West) by Afghanistan (North West) by Khyber PakhtunKhawa and Punjab Province (North East and West) and the Arabian Sea (South) Balochistan is divided into 7 divisions and 32 districts. It constitutes 44% of Pakistan total area, with low population density.

Policy initiatives

the 18th Constitutional Amendment, responsibilities related to agriculture, livestock, forest and fisheries development have been decentralized to the provinces. In order to handle the increased responsibilities resulting from devolution, the Provincial Government of Balochistan developed the Balochistan Agriculture Sector Policy & Strategy in 2014. The Balochistan Livestock Policy and Strategy 2020-2030 has also been recently developed and was approved and notified in 2019. B

The proposed objective of agriculture policy in Balochistan is to raise income and employment of the rural people. Improve the participation of women and other vulnerable groups in economic and social life and to ensure the food security of the population – which is currently 30% of the population of Balochistan.

Government departments engaged in enforcement of quality and SPS measures

Balochistan Food Authority

The Government of Balochistan has enacted the Baluchistan Food Authority Act, 2014 (Act No. VI of 2014). The Bill aims to provide safety and standard of food to establish the Balochistan Food Authority and to provide for the matters connected therewith. The Food Authority shall be a body corporate, having perpetual succession and a common seal with power to enter into contract, acquire, possess or dispose of property and may, by its name, sue or be sued.

The Authority is headed by a Chairman and the Secretaries of food department, health department, public health engineering department, Secretary Industries and Commerce, Secretary Agriculture Department, Secretary Livestock and Dairy Development Department, Secretary Local Government, three Members of Provincial Assembly of Baluchistan, two Food Technologist or Scientists, one representative each of Chamber of Commerce and Industry, Food Industry, Food Operators and two representatives each of farmers and consumers.

The Food Authority regulates and monitors the food business in order to ensure provision of safe food. The Authority has the mandate to formulate standards, procedures, processes and guidelines in relation to food including food business, food labeling and food additives and specify enforcement systems.

The Authority has the powers to specify procedures and guidelines for setting up an accreditation of food laboratories, formulate method of sampling, analysis of samples and reporting of results. It also deals with organizing training programmes in food safety and standards and promotes general awareness to food safety and standards. This Authority is headed by a Director General. There is a provision of Public Analyst and food safety officers to carry out the assigned functions.

Agriculture & Cooperatives – Plant Health

Agriculture Research in Balochistan was initiated during 1891 with Plant Protection and Horticulture. In early stages the work focused on locust control and on growing fruits and vegetables. In addition, plant protection,

quarantine and fumigation of plants, vegetables & fruits were included. In 2004 a Directorate was established with the name of Directorate of Agriculture Research Plant Protection and Entomology under this directorate.

Objectives

- Transmission of modern crop technology and agricultural techniques to the growers
- Laying orchards model farms & budding of fruits.
- Identify crop production problems
- Multiplying foundation seed from nucleus seed
- Assessing crop reporting services in conducting surveys, collection of data, pest attack

Services

- Agriculture Education & Research
- Experimental and demonstration farm
- Improvement of agricultural method
- Protection against insects & pests and prevention of plant diseases
- Marketing Committees under Agricultural Produce Markets Act
- Control over price
- Zoological Survey
- Botanical Survey

Livestock & Dairy Development Department – Animal Health

The areas under focus are mainly:

- Research; farm and feed resources
- Animal Health and Production Extension
- Rural Poultry Development, Cross Breed Farms
- Conservation of indigenous pure breed
- Identification of quality stock
- Multiplication of superior germ-plasm
- Training in animal livestock management
- Evolvement of new breeds
- Study on nutritional requirements
- Study on different economic traits of livestock

In order to get desired goal from production, the Extension Wing extended its activities against contagious diseases.

Components

Animal Health Wing (27 districts)

- Semen Production Unit
- Embryo Transfer Technology Unit
- Animal Nutrition Section
- Epidemiology Section
- Disease Investigation Lab
- Prophylactic Vaccination
- Conservation of indigenous Livestock
- Provision of veterinary and

- Distribution of pedigreed rams male calves.
- Production of quality semen
- Provision of vaccines and veterinary drugs
- Eradication of hinder pest disease

Fisheries

Vision

To plan and develop Balochistan fisheries sector, both marine and inland, on modern lines as per international standards and ensure availability of fresh fish and hygienic seafood to the masses.

Mission

To regulate fisheries activities in Balochistan in light of fisheries laws and to facilitate local fisherman and investors to exploit aquatic resources.

Plans

- To develop a monitoring surveillance and conservation system
- Involve private sector in fisheries aquaculture activities.
- To start exports of fish and fisheries products from Gowadar.
- Arrange and support literacy vocational training to fisherman
- Promote environmental conservation and adopt measures to prevent damage to aquatic biodiversity.
- Establish fisheries training Centre
- Establish fish disease diagnostic lab
- Establish environment friendly demonstration pilot scale stirrup farming.
- Conduct resource surveys and stock assessments.
- Improve labour facilities
- Assist in installation of onboard flake ice units and refrigeration systems.
- Improve hygienic conditions in all fish markets.

Veterinary and Animal Health Sciences.

The Headquarters of Veterinary Services is located in Livestock Wing, MNFS&R. The provincial headquarter is located in Quetta, Balochistan. There is one institute in Balochistan for Advance Studies in Vaccinology and Animal Biotechnology (CASVAB). In Balochistan at district level disease investigation/diagnostic laboratories number 17. There are seven Border Inspection Ports in Pakistan in Balochistan is located at Chaman. Faculty of Veterinary Services is located at University of Agriculture Water and Marine Science, Lasbela.

A Centre for Advance Studies on Vaccinology & Animal Biotechnology (CASVAB) is located in Quetta in the Public sector, whereas public sector Veterinary Department namely; Livestock and Dairy Development Department with Animal Health Wing, Epidemiology Section and Disease Investigation Section has been established. Training and Veterinary Research is located within the Lasbela University of Agriculture, Water & Marine Science in addition a training Centre conducting diploma courses is located at Animal Sciences Training Centre, Quetta. A Veterinary Research Organization, "Centre for Advance Studies on Vaccinology and Biotechnology has been set up at Quetta. Local Government Slaughtering Facility is available at KilaSaifullah, Kohlu, Kalat, Khuzdar, Lasbela, Loralai, Noshki, Quetta, Sibi, Turbat and Zhob, where cattle, buffalo, sheep and goats are slaughtered.

Weaknesses of the quality and SPS infrastructure in Balochistan

Meat and Livestock

- The production base involves small farmers who have practically no exposure/awareness for quality control and sanitary measures.
- The domestic meat market is largely unregulated.
- Weak SPS regulatory laws and poor enforcement of SPS laws
- Slaughter houses lack provision of portable water.
- Personal hygiene has low priority.
- Regulatory framework and its enforcement ineffective.
- Transport used to supply meat is non-refrigerated and open transportation in trucks / vans carried out.
- Supply chain is unhygienic.
- Non-descript breeds in the province some of which are inefficient meat producers.
- Lack of processing facilities according to prescribed standards.
- Absence of quality check on feed and fodder.
- Inefficient disease control and quarantine setup.
- Meat inspection staff is not well equipped not trained to undertake meat inspection.
- Most veterinary hospitals not adequately equipped to cater for veterinary services.
- Lack of quality vaccines.
- Laboratories are not equipped adequately to perform tests.
- Traceability poor.
- Market information system non-existent.
- Foot and Mouth Disease vaccine is not easily available to livestock farmers.

Horticulture

- The fruit and vegetable market system is complex with many functionaries.
- Grading, packaging, labeling are either non-existent or rudimentary.
- Producer capacity to implement GAP limited.
- Supply chain is the weakest link. It is fragmented with poor integration leading to lack of product traceability.
- Pest risk assessment poor, resulting into problems with pests and diseases.
- Post-harvest handling of fruits and vegetables is poor resulting into high losses.
- Pest risk assessment is weak.
- Pesticide level in fresh vegetables is high.
- Cold storage facilities lacking.
- Poor physical market access.
- Pack house facilities to growers' non-existent.
- Weak value chain linkages.
- Value addition scanty.
- Market information system non-existent.

Food Safety

- The Balochistan Food Authority Bill was passed in 2014. The Authority practically started in March, 2015. The positions provided for to the Authority not yet filled-in.
- The Authority currently does not have a regular head.
- Standard making process not yet initiated.
- There is not laboratory support to analyze the samples.
- Procedural, training and manuals for laboratory staff not yet prepared.
- Field testing equipment not provided to the field inspection staff.
- Capacity to check levels of pesticides, mycotoxins, microbiological contamination and additives is lacking.

- Operation of Authority currently limited to Quetta only due to human resource constraints.

Recommendations

The following are a few generic recommendations to improve the quality and SPS management, enforcement and compliance in Balochistan followed by specific recommendations for legal and regulatory reforms, support services, control and cooperation mechanisms among others.

- Develop facilities for farmers for transportation of produce and may be managed by agri-clusters or Public Private Partnership.
- Incentives for agro-based industries with backward linkages with farms
- Develop agricultural based FDI policy to encourage Joint Ventures in agricultural farming, agro-based industrial production, storage, packaging and marketing.
- Introduction of crop insurance in Baluchistan and Sindh
- Capacity building/training of farmers traders
- Training of laboratory staff
- Services / studies to review national food standards, review food safety legislation
- Situation analysis of food inspection system, plant health laws and animal health laws
- Preparation of code of conduct for implementation of official controls
- Productivity sustainability, income enhancement through promotion of rational use of agricultural inputs
- Prevent pre and postharvest losses.
- Clear linkages to other elements of SPS system (animal & Plant health)
- Role of risk analysis expressed with clarity.
- Responsibilities for risk assessment
- Coordinated risk based application of SPS controls.
- Basic SPS structure put in place.
- Promote wool grading, processing and shearing techniques.

Legal and regulatory framework

- Need for a Pesticide Act to regulate the sale and quality of pesticides.
- Need for a Provincial Horticulture Policy to cover promotion of horticulture produce, improve productivity, implementation of SPS measures at farm level (GAP), ensure better access to markets, ensure better returns to farmers through better marketing practices, minimize pre and post harvest losses.
- A new plant health law may be prepared for better Integrated Pest Management and Integrated Crop Management.
- Ensure laws to regulate nurseries for supply of certified and quality seeds in the Province.
- Put in place a market information services for farmers, market functionaries and traders.
- Quality standards for agricultural commodities may be prepared in line with the international standards (Codex), and in coordination with federal standard setting body.
- The Balochistan Food Authority may be adequately strengthened in terms of trained manpower and resources.
- Livestock and Dairy Development Department may be assisted in finalization of the livestock policy being prepared by the department.
- Need to develop a policy for management and regulation of slaughter houses.
- Ensure supply of quality vaccine.
- Ensure supply of quality fodder and feed for animals.
- Strengthen animal diagnostic and treatment facilities.
- Market information system for livestock farmers, traders and market functionaries for alerts for pest, diseases, residues and contaminants.
- Capacity building of farmers, processors, handlers and stakeholder in SPS management.

- Technical assistance to Livestock and Dairy Development Department to enforce traceability to ensure identity of product.
- Sensitization of stakeholders on SPS management, standards, policies for which manuals may be prepared.
- Develop communication skills, preferably in local language as well for better understanding by the stakeholders.

Support services

- Assist Balochistan Food Authority (BFA) to establish a food safety laboratory in the province.
- Laboratory testing equipment to BFA for testing mycotoxins, pesticides residue, residue of veterinary drugs, food contaminants, food additives, microbiological analysis and other physical and chemical tests.
- Setup BFA nutrition school for the stakeholders.
- Assist BFA in preparation of inspection, testing and certification manuals.
- Strengthen agriculture extension services in the province to implement GAP and HACCP approach.
- Improve supply chain management with controlled temperature vans, modern storage facilities and cool chain supply.
- Develop farmer capability to adopt traceability for better marketing of their produce and maintain product identity.
- Market information system to provide timely information to farmers, producers; market functionaries on crop situation, availability, prices, market demand and quality requirements of buyers.
- Develop on success stories in agriculture sector, especially small farmers and processors.
- Sensitive stakeholders on GAP, GMP, HACCP approach and SPS / TBT requirements.
- Improve value chain for livestock sector to ensure profitability and sustainability.
- Livestock processing may be modernized with better processing units.
- Micro level livestock businesses be encouraged.

Control mechanisms

- Assist BFA in preparation of inspection manuals, testing manuals and training manuals.
- Capacity buildings of laboratory and field inspection staff to implement food safety measures.
- Harmonize food standards regulations and laws with national and international standards.
- Apply Good Laboratory Practices (GLP).

International exposure

- Trainings and visits may be arranged for staff, progressive farmers, growers, processors and traders to study various models and procedures adopted for SPS management and official controls.

Cooperation with federal and provincial departments:

- Enhance better coordination between the Federal Food Safety Animal and Plant Health Departments /Ministries and the provincial line departments engaged in SPS management and official controls.
- The Federal Government may expedite the Bill for establishment of National Food Safety Animal and Plant Health Regulatory Body.

CHAPTER 5 SPS AND QUALITY INFRASTRUCTURE IN SINDH

Sindh is one of the four provinces of Pakistan, in the southeast of the country, and the historical home of the Sindhi people. Sindh is the third largest province of Pakistan by area and second largest province by population after Punjab. Sindh is bordered by Balochistan province to the west, and Punjab province to the north. Sindh also borders the Indian states of Gujarat and Rajasthan to the east, and Arabian Sea to the south. Sindh's landscape consists mostly of alluvial plains flanking the Indus River, the Thar Desert in the eastern portion of the province closest to the border with India, and the Kirthar Mountains in the western part of Sindh. It has the second largest economy in Pakistan. Its GDP per capita was \$1,400 in 2010 which is 50 percent more than the rest of the nation or 35 percent more than the national average. Historically, Sindh's contribution to Pakistan's GDP has been 30% to 32.7%.

Policy initiatives

The Sindh government approved Sindh Agriculture Policy at a cabinet meeting held on April 16, 2018. In order to prepare detailed strategies and action plans, oversee implementation and address all emerging issues, an Agriculture Policy Implementation Commission has been set up under the Minister Agriculture, Supply and Prices as its head. The policy has the following goals:

Raising agricultural growth

Measures to increase the agricultural sector growth to 4-5% per annum will be taken as a necessary condition to improve incomes, reduce poverty, better food security, provide decent employment and facilitating a greater attention to sustainability.

Future growth in agriculture, livestock and fisheries will come from improving efficiency and productivity. To achieve this, the research and extension systems will be strengthened to make technological innovations in production, for example through improved seeds of major and high-value crops and livestock breeds for milk and meat.

The government will work to create a regulatory framework to encourage the banks and private sector to enhance investments and finance into agriculture sector in order to boost the level and efficiency of public expenditure to more efficient programs and provide public goods.

Reducing poverty, food and nutrition Insecurity

To meet the internationally agreed Sustainable Development Goals related to poverty, gender and malnutrition, Sindh has to halve the number of poor by eliminating extreme poverty; reducing by half the malnutrition and ensure access by all people, to safe, nutritious and sufficient food all year round; and end all forms of malnutrition.

The government intends 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. The policy advocates to promote better on-farm water management regulate, control groundwater resources and environmental flows to downstream kotri and coastal areas and manage rangelands.

Creating a resilient and climate-smart agriculture:

In coming years, Sindh's rural population will have to cope with higher rainfall, temperature and river flow as well as with the increased frequency and greater intensity of natural disasters such as floods, droughts, tsunamis and sea storms.

In order to deal with these challenges 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, 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.

Consumer protection and fair trade

Consumer protection and fair trade (legislation, inspectorate, control system)

In the province of Sindh, following statutes are in place for the purposes of price control of foodstuff and essential commodities.

The Sindh Essential Commodities Price Control and Prevention of Profiteering and Hoarding (SPPPHA) Act, 2005:

It empowers the Provincial Government of Sindh to control the prices, selling and distribution, transport and movement and withholding of stocks of different 'essential commodities' notified by the Provincial Government of Sindh. Essential commodities under the SPPPHA are bifurcated into two broader categories i.e. perishables items and non-perishable items. Non-perishable items include; wheat, pulse, ghee, sugar and rice etc. Perishable items include fruits and vegetables. Under the SPPPHA items such as wheat, rice and sugar are considered as essential however, the relevant Provincial Authorities have power to notify other products which it may deem as essential. The prices of non-perishable essential commodities are determined on a monthly basis by the District Price Committees (DPCC) whereas the prices of fruits and vegetables are determined on a daily basis by monitoring auctions at the mandis. The price lists are then enforced in every district through notified price magistrates.

The Sindh Wholesale Agriculture Produce Markets (Development & Regulations) Act 2010 (SWAPMA):

This act repealed the Agricultural Produce Markets Act, 1939 and provides for the establishment of private sector wholesale agricultural produce markets, promoting private sector investment to develop the agricultural marketing system, and allowing effective regulation for more competitive, transport, modern and efficient wholesale agriculture produce markets. SWAPMA is aimed at converting agricultural markets into private limited companies. While SWAPMA allows markets to have a regulatory role, it breaks away from the practice of price controls at least theoretically this is a very interesting development that has potential to change the outlook on how agricultural markets work.

The Sindh Registration of Godowns Act (SRGA), 1995:

This act was enacted with the express purpose of curbing hoarding and ensuring a stable supply and availability of essential commodities. It also requires the registration of godowns with the Director General Bureau of Supply and Prices and requires maintenance of records with respect to movement of essential commodities in and out of the godowns.

Government departments engaged in enforcement of quality and SPS measures

Sindh Food Authority

After 18th constitutional amendment, the control of food safety and quality has become a crucial component of provincial government's service domain. In order to fulfill this responsibility, Sindh Food Authority (SFA) was established replacing ailing food control system based on Food Inspectorates working under Health authorities.

Legal and scientific basis of SFA

In order to regulate food safety in Sindh province, food authority was established in year 2017 under the Sindh Food Authority Act, 2016 (Sindh Act No. XIV of 2017). Prior to onset of SFA, the regulations in force were Pure Food Ordinance, 1960 and Pure Food Rules, 1965. With the establishment of SFA, these regulations were repealed. Now in the province, Sindh Food Authority Regulations, 2018 are the relevant food safety regulations, where around 100 food standards developed by PSQCA with all of their requirements

have been directly adopted. In case of unavailability of PSQCA standard for a particular food, the Codex Alimentarius standards are adopted. Thus Sindh Food Authority Regulations (SFAR) has in-built arrangement of getting updated, as an ongoing process of review of Pakistan Standards or Codex Alimentarius Standards prevails, when and where required. Moreover Scientific Panel of SFA can also propose any new requirement in regulations and any addition/deletion could be done by the approval of the SFA Board. The Scientific Panel of SFA comprises of reputed professionals belonging to governmental institutions, public and private organizations and academia.

SFA Regulations pertaining to commodities covered under GRASP project

Various standards are mentioned in SFAR 2018 with reference to handling, processing and storage of major horticulture produces. Codex Alimentarius or Pakistan Standards available in line to these SFA rules are adopted directly. Detail of these standards is elaborated in below given table.

SFA Rules No.	Pakistan Standard Title	Pakistan Standard No.	Annexure No. (SFA Rules)
4.2.1.1	Onion – Guide to Storage	PS: 3115	Annexure-75
4.1.1.1	Mangoes – Guide to Storage	PS: 3116	Annexure-51
4.1.2.4	Canned Mangoes	PS: 4838	Annexure-60
4.1.2.8	Canned Mango Pulp.	PS: 2026	Annexure-68
12.2.1	Amchur Raw Mango Powder	PS: 4258	Annexure-206
4.1.1.1	Storage and Transport of Green Bananas	PS: 3416	Annexure-48
4.1.1.1	Green Bananas Ripening Conditions	PS: 3414	Annexure-49
4.1.2	Processed Dates & Dates Products	PS: 1689	Annexure-54
4.1.2.8	Date Paste (Regional Standard)	CS: 314R	Annexure-70
4.2.2.5	Tomato Puree & Pulp	PS: 518	Annexure-97
4.2.2.6	Tomato Paste	PS: 517	Annexure-98
12.6.2	Tomato Ketchup/Sauce	PS: 530	Annexure-232
4.1.2.2	Tomato Juice	PS: 516	Annexure-251
4.1.2.4	Tomato Concentrate	PS: 3952	Annexure-253
12.6.2	Chilli Sauce	PS: 3604	Annexure-230
12.2.1	Dried Whole Chillies	PS: 4251	Annexure-220
4.1.1.1	Melon – Guidelines for Cold Storage and Refrigerated	PS: 3417	Annexure-47

Contaminants, Toxins and Residues are covered in Chapter 18 of Sindh Food Authority Regulations, 2018. This chapter defines the injurious to health food, prescribes the maximum residue limits for pesticides and maximum limit for heavy metal contaminants as mentioned in Annexure 8.1, whereas Annexure 8.2 of SFAR, 2018 describes microbiological limits for ready to cook & ready to eat poultry, mutton and beef products.

Requirement for contaminants, toxins and residues in SFAR 2018

Chapter 18 of SFRA 2018 elaborates the definition and requirement for control of hazards in any food.

The text below is copied from SFAR 2018.

(1) “Unsound food and food injurious to health/incidental constituent” means any extraneous substances, metal contaminants, crops contaminants and naturally occurring toxic substances/mycotoxin residue, drug residue, antibiotic residue, hormonal residue, insecticides residue, pesticides residue, microorganism and

their toxins, and irradiated constituents that is contained or present in or any food but does not include any coloring matter, preservative, flavoring agent, flavoring enhancer, anti-oxidant, food conditioners, artificial sweetening agent, nutrient supplement.

(2) No person shall keep, carry, spread or use, or cause or permit to be kept, carried, spread or used any toxic, noxious or harmful substance so as to expose a food intended for sale to the risk of contamination by that substance at any time in the course of preparation, manufacture, storage, packaging, carriage, delivery, or exposure for sale, of the food.

(3) No person shall import, prepare or advertise for sale or sell any food containing any incidental constituent except as otherwise specified in these rules.

(4) Any article of food shall be considered as injurious to health and unfit for human consumption within the meaning of section 5, if:

- a) It is putrefied or decayed or emits a bad smell; or
- b) It is infested with insects; or
- c) It has evidence of filth or of rodent excretion or hair.

Moreover, contaminants, toxins and residues shall conform to following PSQCA Standards:

Serial No.	Standard Title	Standard Number	Annexure No.
1	Maximum Limits for Pesticides Residues	PS:2023	Annexure-278
2	Recommended Limits for Radionuclides Contamination of Food	PS:2982	Annexure-279
3	Guide for the Microbiological Quality of the Spices and Herbs	PS:3741	Annexure-280
4	Tin Plate containments for Ghee Vanaspati, Cooking/Edible Oil	PS:4773	Annexure-281

Annexure 8.1: Chemical contaminants limits for various meat and meat products

Contaminant or toxins

Product	Contaminant	Max Level
Canned meats, Meat extracts and hydrolyzed protein,	Lead	0.5 ppm
Iron fortified common salt Corned beef, luncheon meat, Chopped meat, Canned chicken, etc.	Lead	0.5 ppm
Canned mutton	Lead	0.5 ppm
Corned beef, Chopped meat, Canned chicken, Canned mutton	Tin	250 ppm
Meat	Mercury (Calculated as the element)	1.0 ppm
	Mercury (Calculated as the element)	0.25 ppm

Insecticides

Product	Contaminant	Max Level
Meat	Aldrin, dieldrin (the limits apply to aldrin and dieldrin singly or in any combination and are expressed as dieldrin)	0.2 mg/Kg
Meat and Poultry	D.D.T. (The limits apply to DDT, DDT and DDE singly or in any combination (on whole product basis)	7.0 ppm
Meat	Fenitrothion	0.03 ppm
Meat and poultry	Hexachlorocycle hexane and its Isomers (gamma) known as Lindane	2.0 ppm
Meat and poultry	Chlorienvinphos	0.2 ppm
Meat and poultry	CHLORPYRIFOS	0.1 ppm
Meat and poultry	2,4D	0.05 ppm
Meat and poultry	Residues to be determined as Ethion and its oxygen analogue expressed as Ethion (Carcass fat basis)	0.2 ppm
Meat and poultry	MONOCROTHPHOS	0.02 ppm
Meat and poultry	TRICHLORFON	0.1 ppm
Meat and poultry	Benomyl (Carcass fat basis)	0.1 ppm
Meat and poultry	Carbofuran (sum of carbofuran and 3-hydroxy carbofuran (Carcass fat basis)	0.1 ppm
Meat and poultry	Edifenphos (Carcass fat basis)	0.02 ppm
Meat and poultry	Fenthion (sum of fenthion, its oxygen analogue and their sulphoxides and sulphones expressed as fenthion) (Carcass fat basis)	2.00 ppm
Meat and poultry	Fenvalerate (Carcass fat basis)	1.0 ppm
Meat and poultry	Phenthoate (Carcass fat basis)	0.05 ppm
Meat and poultry	sulphoxides and sulphones expressed as phorate (Carcass fat basis)	0.05 ppm
Meat and poultry	Pirimiphos-methyl (Carcass fat basis)	0.05 ppm
Irradiations		
Meat and Meat Products including Chicken (FSSR)	Irradiation	2.5 (KGY) min limit 4.0 (KGY) max limit

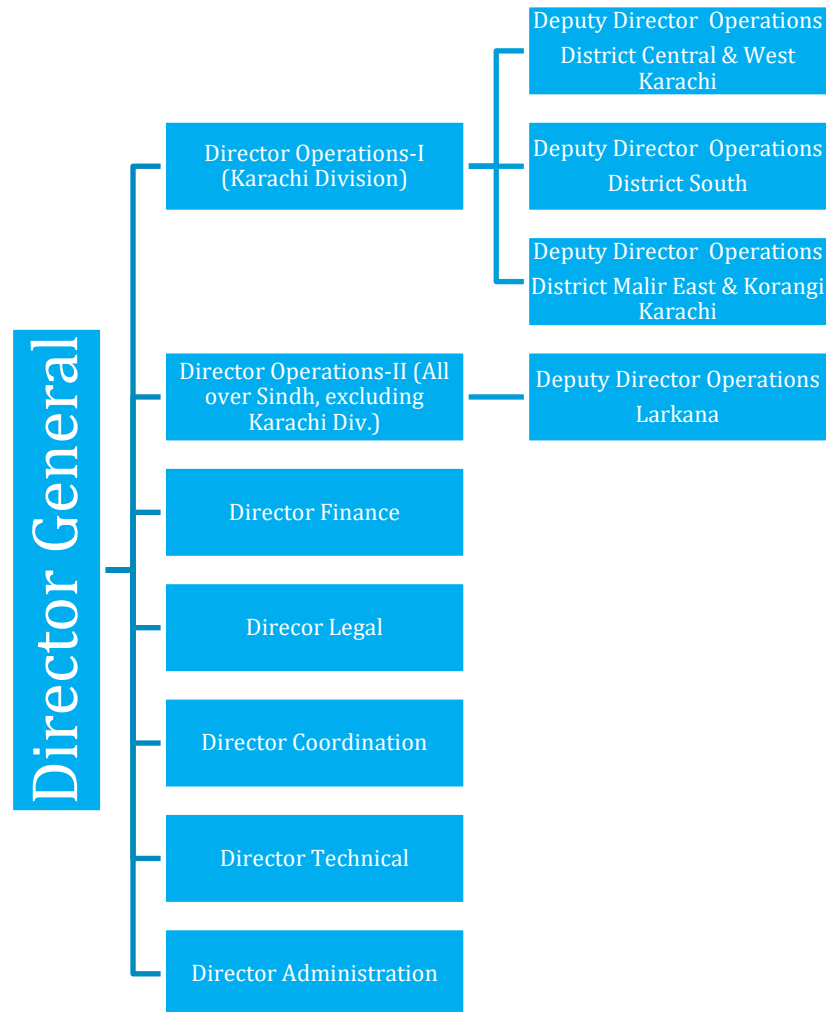
Annex 8.2: Microbiological limits for ready to cook & ready to eat poultry, mutton and beef products

Tests	Unit of Measurement	Ready to Cook Products (Poultry/Mutton/Beef)	Ready to Eat Products (Poultry/Mutton/Beef)
TPC	Per Gram	<1000000	<50000
<i>Staph. aureus</i>	Per Gram	<1000	<100

<i>E. coli</i>	Per Gram	<100	<10
<i>E. coli</i> O157	Per 25 Grams	GMP/FSMS	Absent
Coliform/Fecal Coliform	Per Gram	<1000	<200
Salmonella	Per 25 Grams	GMP/FSMS	Absent
<i>Listeria monocytogenese</i>	Per 25 Grams	GMP/FSMS	Absent
Campylobacter	Per 25 Grams	GMP/FSMS	Absent
<i>Bacillus cereus</i>	Per Gram	<1000	<100
<i>Clostridium perfringens</i>	Per Gram	<1000	<10
Yeast/Mould	Per Gram	NA	<500

Organizational structure

Director General is head of the organization, remaining hierarchy is given below:



The field team comprises of 45 (forty five) food safety officers. Process for induction of 25 fresh food safety officers is in pipe line. It is expected that soon these will be recruited. The main office of Sindh Food Authority is located at Karachi. Whereas regional offices are established at various divisional headquarters.

Food safety control

Duties of food authority are given in clause 2.3 of SFA regulations (2018) as given below:

- (1) It shall be the duty of a Food Authority to:
 - a) take steps for the creation of the post of one Food Safety Officer for every 500,000 population or part thereof and for his appointment;
 - b) ensure that the Food Safety Officer collects a minimum of 100 samples a month, and an *ex-officio* Food Safety Officer, at least 20 samples a month;
 - c) maintain permanent registers of licensees category-wise as required under these rules;
 - d) ensure that the cases of food offence cases are neither withheld nor are they compounded, without the approval in writing of the Government;
 - e) maintain permanent record of the prosecution of food offenders and of the revenues from the costs realized; and

- f) enforce the provisions of the Ordinance and the rules;

The control of food safety issues in the province is therefore core responsibility of Food Authority. To fulfill this responsibility, SFA issues licenses to food establishments and register them. Ensures medical fitness of workers and endures to prevent food poisoning. It also issues regulations and regulate food premises as per HACCP requirements. In order to undertake all above given duties certain powers have been assigned to SFA.

Powers and functions of the Food Authority

The powers and functions of SFA are elaborated in clause 2.2 of SFA regulations (2018) as given below:

- (1) The Food Authority shall regulate and monitor the food business in order to ensure provision of safe food.
- (2) Without prejudice to the provisions of sub-section (1), the Food Authority may
 - a) formulate standards, procedures, processes and guidelines in relation to any aspect of food including food business, food labeling, food additive, and specify appropriate enforcement systems;
 - b) specify procedures and guidelines for setting up and accreditation of food laboratories;
 - c) formulate method of sampling, analysis of samples and reporting of results;
 - d) specify licensing, prohibition orders, recall procedures, improvement notices or prosecution;
 - e) determine terms and conditions of service of its employees;
 - f) provide scientific advice and technical support to the Government in matters relating to food;
 - g) collect and analyze relevant scientific and technical data relating to food;
 - h) establish a system of network of food operators and consumers to facilitate food safety and quality control;
 - i) organize training programs in food safety and standards;
 - j) promote general awareness as to food safety and standards;
 - k) levy fee for registration, licensing and other services;
 - l) certify food for export;
 - m) perform any other prescribed function; and
 - n) do any other thing which is necessary for the discharge of its functions under this Act.
- (3) The Food Authority shall exercise its functions, as far as possible, in accordance with the well-established scientific principles and international best practices.

Laboratory services of SFA

At Sindh Food Authority office in Karachi, a laboratory has been established for testing of ceased food samples. Recruitment of a few laboratory staff members has been made, however laboratory facilities available at present are of very basic nature. The third party laboratory services from some private and public laboratories are being used for major analytical requirements for which testing facility is not available at SFA Lab. Food Safety Officers are equipped with food testing kits to conform food control in field while performing inspections.

Information, Education, Communication and Training

SFA strives hard to educate the food handlers to produce safe food, consumers to demand safe food, authorities to regulate food safety. It has established a training school at its office premises in Karachi to train food handlers. Till date more than 300 persons involved in food business has completed training in Level 1 or 2 of food safety. It is the responsibility of food safety officers as well to educate the enterprises to

avoid violation of rules through educating them at first instance. In order to communicate its actions and guidelines to the stake holders, SFA has established a very well updated website: <http://sfa.gos.pk/>, where a lot of valuable information is readily available with access for everyone. SFA also trains its food safety staff as well as management regarding food safety issues through some out sourced training service providers.

Department of Plant Protection (Ministry of National Food Security and Research)

Department of Plant Protection (DPP) works under the control of Ministry of National Food Security and Research. It is designated as National Plant Protection Organization.

Legislation

This department is responsible to regulate import and export of agricultural commodities with respect to sanitary and phytosanitary measures under Pakistan Plant Quarantine Act 1976 and Pakistan Plant Quarantine Rules 1967. These laws were enacted by the Government for preventing the introduction and spread of exotic pests and diseases which could be destructive to field crops, horticulture, floriculture and forests. Pakistan Plant Quarantine regulation is also in conformity with the recommendation of FAO International Plant Protection Convention 1951.

Organizational structure

The Department of Plant Protection is maintaining plant quarantine offices at entry and exit points of the country. DPP consists of the following four divisions and wings:

- Plant Quarantine
- Pesticide Registration
- Locust Control and Survey
- Aerial Wing

In addition, the Department also operates the following two laboratories:

- Central Plant Quarantine Lab
- Federal Pesticide Testing and Reference Lab

Control

Authorized technical officers of the Department of Plant Protection ensure phytosanitary measures and certification of regulated commodities being exported and imported at entry and exit points of Pakistani territory. Furthermore, pesticide import, manufacture and formulation control is also being handled by DPP.

The DPP provides following services to its clients (importers and exporters of Plant and Plant material).

1. Import Permit for import of permitted plant and plant material.
2. Special Import Permit for import of plant and plant material for research.
3. Import Permit for import of plant and plant material subject to Pest Risk Analysis.
4. Plant Protection Release Order for entry of permitted and compliant shipments of plant and plant material.
5. Phytosanitary Certificate for export of permitted plant and plant material.
6. Phytosanitary certificate for export of plant and plant material subject to Market Access after Pest Risk Analysis.

Directorate of Plant Protection (Agriculture Extension Sindh)

The Agriculture Extension is disseminating Modern Agriculture Information to the Growers including new varieties of Seeds, Fertilizers, Pesticide, Farm Machinery on one hand and on other hand providing knowledge regarding Weather, Pest, Diseases and control measures. The Agriculture Extension wing is also taking action against the business of sub-standard pesticide and fertilizer to ensure availability of quality pesticides and fertilizers to the Growers. Agriculture Extension Sindh has responsibility to provide advisory

services to the farming community about modern crop production practices and technologies to increase overall farm production and yield per unit area.

Pesticide quality control legislation

Agricultural Pesticides Rules, 1973 were framed under the Agricultural Pesticide Ordinance, 1971. Periodically amendments to these rules were made through issuance of SROs by federal government. Recent major amendment was made in these rules in 2007 through SRO 625. These regulations were enacted to regulate the import, manufacturer, formulation, sale, distribution and use of pesticides for eradicating and preventing augmentation and spread of indigenous and exotic pests and diseases which could be destructive to field crops, horticulture, floriculture and forests.

The rules exclusively describe the procedure for registration of pesticide and operation of pesticide companies. The rules for packing, re-packing, re-filling and labeling and storage are also framed. The functions, operations and procedures of pesticide laboratory are also elaborated, whereas requirements for government analyst and inspectors are also enacted in these rules.

Organizational Structure:

The function to regulate inspection, testing, distribution, use, sale and storage has been shifted to the Provincial Agriculture Departments after 18th Constitutional Amendment. Whereas Department of Plant Protection (DPP) is responsible to import, manufacturer, formulation of pesticides in Pakistan besides quarantine functions. The quality control of the pesticide is executed through the network of inspectors and pesticide laboratories of Directorate of Extension, Agricultural, Supply and Prices Department, Government of Sindh notified by the Federal Govt. under Agricultural Pesticide Ordinance, 1971. The Provincial Agriculture Department in Sindh has 3 pesticide labs and 151 inspectors.

The notified pesticide laboratories in Sindh are as following:

- Pesticides Quality Control & Testing Laboratory, Hyderabad, Sindh.
- Pesticides Testing Laboratory, Department of Agriculture Rohri, Sindh.
- Pesticides Testing Laboratory, Mirpurkhas, Sindh.

Distribution of functions for pesticide control between federal and provincial departments

Department of Plant Protection (Federal)	Department of Plant Protection, Agriculture Extension, Agricultural, Supply and Prices Department Sindh
<input type="checkbox"/> Import <input type="checkbox"/> Manufacture <input type="checkbox"/> Formulation	<input type="checkbox"/> Inspection <input type="checkbox"/> Testing <input type="checkbox"/> Distribution <input type="checkbox"/> Use <input type="checkbox"/> Sale <input type="checkbox"/> Storage

Control

The inspectors visit stores and shops for checking pesticides in order to ensure the sale of high quality, effective and approved pesticides. Samples of pesticide are taken and got analyzed in the Provincial Pesticide Laboratories. One portion of the sample is handed over to the vendor and other is sent to the Federal Testing & Reference Laboratory, DPP-Karachi. In case sample is declared unfit by the Provincial laboratory, FIR against the culprit is registered and case in the court is processed for trial. Law requires that the pesticide importer or firm shall register with the Provincial Government their dealers, agents and vendors of the pesticides imported by them and shall be responsible for their conduct. However the Firm/Vendor has the right to submit appeal to the DPP within one month for retest of the other sealed portion of the sample.

Directorate of Information (Agricultural Extension Sindh)

Agriculture Extension services are the main source of agricultural information dissemination among farming communities in Sindh Province. In the prevailing conditions of low proportion of Agriculture Extension agents to farmers (1: 6,881), lack of direct regular Extension Services for female farmers and high use of mobiles by farming communities Directorate General Agriculture Extension Sindh has established Information and Communication Technologies (ICTs) Agricultural Extension Services Centre under Sindh Agricultural Growth Project (SAGP) funded by World Bank.

Functions

Key interventions of the center are as under:

- Digitization of farmers (More than 30 thousand farmers are registered to provide them agriculture extension service through different ICT tools.
- Farmer Agricultural Call Centre is established and providing advisory service.
- Mobile Phone SMS service is initiated for farmers.

- Agricultural videos preparation and demonstration through Agricultural Mobile Cinemas in rural areas.
- Development of Android applications. Agriculture for Nutrition App in English and Sindhi languages is developed for first time and is available on play store.
- WhatsApp groups of farmers to send WhatsApp messages to farmers.
- Use of social media is strengthened, under this a website, Facebook page, Twitter account, YouTube video channel are active.
- ICT based Female Agricultural entrepreneurship extension services on pilot basis, is being launched to give them online trainings through village facilitators.
- Established audio video studio and produced videos for farmers' awareness.
- Conducted trainings of field staff about use of ICTs in agriculture.
- Center has conducted participatory research and developed five color agricultural approach to enhance farmers' productivity and increase nutritious food.
- This center has developed hand planter for female farmers to reduce their work burden.
- Center is linking Agriculturists with media to high light their work through radio and TV programs.
- Stake holders' platform is being developed to link all stakeholders to share their views with each other.
- E-Agri Market place is being developed through android application and workshops.
- This center is being used to link all stakeholders.
- ICT Agricultural Extension Services Center sub centers are being established in Mirpurkhas and Larkana divisions. In next phase sub centers will be established in each district.

The vision of Extension Department is to strengthen Agriculture Extension Services System with Information and Communication Technologies (ICTs) and provide quick, relevant, accurate and effective agricultural extension services to the farming community of Sindh, and enhance linkages between extension, research and farmers.

Directorate General of Agriculture Research (Agricultural, Supply and Prices Department)

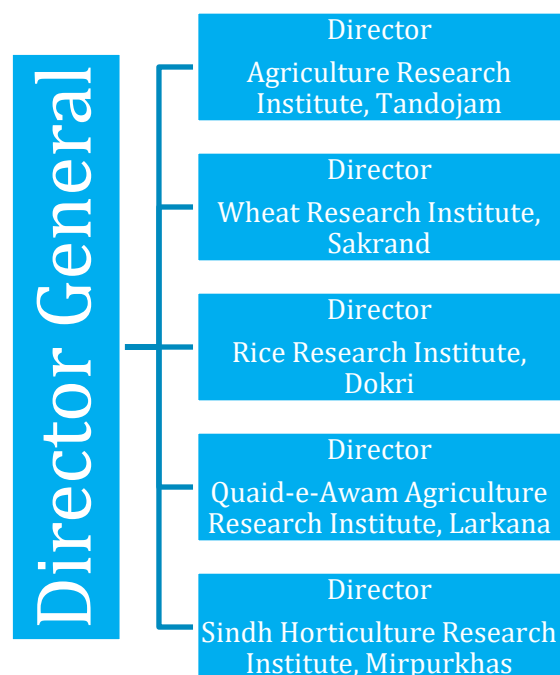
In Sindh province sanitary and phytosanitary measures under plant protection regime are being handled by Agriculture Research Wing of Agricultural, Supply and Prices Department, Government of Sindh. Agriculture Research started in Sindh with the establishment of Agriculture Research Station at Sakrand. Having three nucleus sections named as agriculture, chemistry and botany. With the opening of Sukkur barrage, expansion of Agriculture Research took place. An Agriculture College was also established at Sakrand. Later Agriculture College and Agriculture Research shifted from Sakrand to Tando jam and both of these were separated.

Organisational Structure

Agriculture Research Wing encompasses multiple research facilities i.e. research institutes, research stations and sub-stations. Presently Director General, Research, stationed at Tandojam looks after these agriculture institutions spread all over the province. Research institutes are:

- Agriculture Research Institute Tandojam (conducts research on various field crops)
- Sindh Horticulture Research Institute Mirpur Khas (conducts research on fruit and vegetable crops)
- Rice Research Institute Dokri (conducts research on rice and pulses crops)
- Wheat Research Institute Sakrand (conducts research on wheat crop)
- Quaid-e-Awam Agriculture Research Institute Larkana (conducts research on crops grown on residual moisture of rice i.e. dubari crops)
- Foundation Seed Cell (produces BNS, Pre-basic and Basic seed of wheat, rice and cotton crops)

Organogram of Research Wing is as follows:



Research stations and sub-stations

Research wing has the control of around 21 stations and 13 sub-stations to conduct research on different areas of agriculture. A list of these stations is given below:

Research stations

S. No.	Name of Station	Location
1.	Sugarcane Research Station	Sujawal
2.	Sugarcane Research Station	Naudero
3.	Oilseeds Research Station	Shikarpur
4.	Oilseeds Research Station	Golarchi
5.	Maize & Millet Research Station	Dadu
6.	Sunflower Research Station	Sangi
7.	Cotton Research Station	Ghotki
8.	Horticulture Research Station	Mirpurkhas
9.	Chillies Research Station	Mirpurkhas
10.	Vegetable Research Station	Mirpurkhas
11.	Date Palm Research Station	Kotdiji
12.	Tomato Research Station	Badin
13.	Onion Research Station	Husri
14.	Jujube Research Station	Tandojam
15.	Coconut Research Station	Karachi
16.	Citrus Research Station	Sakrand
17.	Guava Research Station	Naudero
18.	Chiku, Papaya and Banana Research Station	Ghulamullah
19.	Pulses Research Station	Dokri
20.	Rice Research Station	Thatta
21.	Southern Wheat Research Station	Tandojam

Research sub-stations

S. No.	Name of Station	Location
1.	Cotton Research Sub-Station	Mirpurkhas
2.	Agriculture Research Sub-Station (Multi crop)	Sakrand
3.	Agriculture Research Sub-Station (Multi crop)	Kotdiji
4.	Agriculture Research Sub-Station (Multi crop)	Shikarpur
5.	Groundnut Research Sub-Station	Sanghar
6.	Horticulture Research Sub-Station	Mirpurkhas
7.	Horticulture Research Sub-Station	Kot Ghulam Muhammad
8.	Vegetable Research Sub-Station	Mirpurkhas
9.	Vegetable Research Sub-Station	Sarhad
10.	Vegetable Research Sub-Station	Husri
11.	Rice Research Sub-Station	Shikarpur
12.	Auxiliary Seed Multiplication Farm	Nasirabad
13.	Pulses Research Sub-Station	Tandojam

These stations were established to conduct research on different crops, fruits and vegetables at dedicated facilities. However with few exceptions all of these stations are in bad shape or even in non-operating position. The research stations designated to conduct research trails on chillies, onion, tomato are non-functional. The land under the control of these stations is lying abandoned or in some instances encroached. However Date palm research station is functional and research activities are being conducted.

In depth analysis of research activities shows that these are in bad shape in the province. One example of research interventions associated with chillies given here to explain the situation. Chilli is an important crop of Sindh province having Kunri in Umerkot district as the largest red chilli market in Asia. The chilli research station at Kunri is non-operational, thus private and federal organizations e.g. SMEDA, SGS and PARC are bridging this gap and extending their services to farmers and traders of red chilli. The private business operators National Foods, Shan etc. are carrying out their own research programs in this area for sustainability of chilli crop.

Functions related to SPS

- Evolution of new high yielding and insect, pest, disease resistant varieties of major and minor crops.
- Disseminate improved production technologies to the growers.
- Develop control measures for control of weeds, insects, pests and diseases based on Integrated Pest Management (IPM) strategy.
- Screen new incoming pesticides for standardization.
- Provide advisory services to the growers for specific and usual problems.

General functions

- Provide facilities to the farmers for testing soil, water and fertilizer samples at district level. Formulate recommendations and suggestions for soil and crops management; suggest measures for reclamation for saline soils.
- Produce pre-basic, basic, certified and approved seeds of different crops for further multiplication.
- Develop package of appropriate improved production technologies for crops / plants to get higher yields.
- Conduct studies on input like seed, fertilizer, irrigation water requirements of crops/plants.

Relevant technologies developed for different crops

- Development of pest control technologies including integrated pest management (IPM) for control of insect pests, diseases and weeds minimize use of pesticides.
- Mass rearing of parasites (Trichogramma) and Predators (Chrysopa).

- Supply of parasites and predator cards to the growers.
- Recommendations of new pesticides based on research trials.
- Development of technology to control post-harvest losses of fruits, vegetables and cereal crops.

The Animal Quarantine Department (Ministry of National Food Security and Research)

Animal Quarantine Department (AQD) is an attached department of Ministry of National Food Security and Research with its' headquarter at Karachi. AQD regulates the quarantine control of import and export of animals and products thereof. It has not any mandate and capacity for intervention in local trade of livestock and allied products.

Legislation

The legislative basis of the AQD is as follows:

- i. Pakistan Animal Quarantine (Import and export of animals and animal products) Act, 1979 and Amendment Act, 1985.
- ii. Pakistan Animal Quarantine (Import and export of animals and animal products) Rules, 1980.

Organizational Structure

AQD has established Quarantine Offices at Karachi, Islamabad, Lahore, Peshawar, Quetta, Sialkot and Multan.

Control

AQD offers services in various areas:

- Health Certificate for export of animals of all kinds and products thereof.
- Inspection and management of quarantine facilities for animals.
- Health Certificate for Export of Animals of all kinds and products thereof.
- Registration of Export Oriented Animal Products processing units/plants/ establishments like slaughter houses, animal casing units.

To undertake above given services AQD performs physical inspection, sample collection, laboratory testing in following way:

- a. Quarantine of live animals for the period as determined by the Quarantine Officer.
- b. Laboratory test and reports as mentioned in schedule I for diseases mentioned in schedule II of Pakistan Animal Quarantine Rule, 1980.
- c. Any other condition imposed by importing country

Livestock and Fisheries Department, Government of Sindh

In the province, Livestock and Fisheries Department exists under the Government of Sindh. One of the main arms of this department is Directorate General Livestock whereas another arm is known as Directorate General Extension and Research. The Director General Livestock has two directorates i.e. Directorate of Animal Husbandry and Directorate of Animal Breeding under his control. The foremost directorate deals with animal health and other with insemination services. There is reasonable strength of staff available, presently working at union council level under the control of these directorates. Staff can be divided into two categories i.e. vets (veterinarians) and para-vets. Presently vet staff strength is 400 which are expected to be doubled in near future, whereas 1500 para-vets are also serving in the department. Description and function of directorates associated with animal health is given below:

Directorate of Animal Husbandry, Karachi

An experimental station named as Wellington Cattle Farm was established in 1923 with a view to preserve the purity of the Red Sindhi Cattle Breed. After independence, farm was renamed as “Central Red Sindhi Breeding Farm”. Later, it was decided to make the farm a non-commercial research entity and the name of the farm was changed to “Livestock Experiment Station Malir”. In January 1975, the Government of Sindh declared the Livestock Experiment Station Karachi as “CENTO Institute for Animal Reproduction” and “The Poultry Research Institute Karachi” as components of an integrated Animal Science Complex. Presently this station is working as Animal Science Complex of Sindh.

Legislation - Animal Contagious Diseases Act 1948

This law provides the power to regulate inter-provincial trade and to control transport of animals and things which may spread disease. It restricts the movement of infective animals into the province. Act has the provision to control the infected premises, vessels and vehicles and to regulate the isolation, detention, treatment (including sterilization and inoculation) and disposal of animals which are infected or suspected of being infected and the disposal of carcasses and parts of carcasses.

Functions

- To carry out the experiments on the various aspects of the Red Sindhi Cattle Breed in its original Characters.
- To act as demonstration stations for disseminating the results of experiments to the farmers for improvement of their livestock.
- To maintain the purity of Red Sindhi cattle Breed.
- Supply the breeding bulls to the farmers as well as the Veterinary Hospitals and Dispensaries to improve the genetic potential of their Livestock through natural services.

Directorate of Animal Breeding

The Directorate of Animal Breeding came into being in 1995-96 after up gradation of project “Artificial Insemination Services in Sindh” which was launched in 1975-76. At present this Directorate providing the Livestock Breeding Services in the Province through 23 District A.I Centers, 64 A.I Sub Centers and 51 field A.I Centers. Beside that there are two S.P.U one at Korangi Karachi for Production of Enzootic & Exotic Semen doses & other at Rohri for Production of Kundhi Buffaloes Semen Doses, the Semen Doses from both Semen Production Units are distributed regularly to Field Artificial Insemination Units to meet the requirements of Artificial Insemination.

Legislation – The Sindh Livestock Breeding Act, 2016

This act was passed by the Provincial Assembly of Sindh on 9th March, 2017 and enforced in April 2017. As per preamble of the act it has been formulated to regulate the livestock breeding services and to improve genetic potential of breeds and protect indigenous breeds of livestock in the Sindh.

Functions

At present the Directorate is facilitating the Livestock breeders / farmers with the modern technology of Animal Breeding i.e. Artificial Insemination at their door steps. The Directorate is focused in direction & execution by delivering programs that offers the diverse need of farming community to provide the opportunities for improving Livestock Breeding services in areas compassing the recent technologies of Livestock breeding for improving genetic Potential & scientific Livestock farming to obtain dynamic progress from rural sociology to Livestock business & marketing.

It is the objective of directorate to develop human resource to evolve strategies for sustainable development of livestock breeding sector leading to poverty elevation through Improvement in genetic potential of animals. To achieve this objective modern technologies of livestock breeding are introduced for enhancement of per animal production in shape of milk and meat.

Sindh Institute of Animal Health, Karachi (Livestock and Fisheries Department)

Provincial Assembly of Sindh passed a bill in 2018 to establish Sindh Institute of Animal Health at Karachi. This institute is an up gradation of earlier existing Sindh Poultry Vaccine Centre, Karachi.

Legislation - The Sindh Institute of Animal Health at Karachi Act, 2018

A bill was passed by Provincial Assembly of Sindh on April 27, 2018 to establish Sindh Institute of Animal Health at Karachi. This law was enacted in May 2018. The act elaborates the functions of institute in the areas of production and research on efficacy of vaccines & drugs, diagnostic services for poultry, livestock and their products, prevention of infectious diseases, capacity building of vet and para-vet manpower.

Functions

The act elaborates the functions of institute as below:

- To develop, manufacture and produce vaccine, drugs and biological for prevention and treatment of livestock, poultry, wild live and pets, and of veterinary public health importance
- To conduct survey, research, tests and experiments for the composition, safety, potency an efficacy of such vaccines, drugs and biological and of those distributed and sold in its jurisdiction
- To collect samples, conduct surveillance studies and provide diagnostic services for the livestock, poultry and their products
- To make efforts, studies and conduct research for the prevention of emerging infectious diseases in animals.
- Other functions of the institute include provision of training, refresher courses, post graduate research, seminars, marketing and extension services in the animal health field.

Sindh Livestock Registration and Trade Authority (Proposed)

This authority is proposed to handle registration, tagging and identification and development of the activities related to livestock products. It will act as the final decision making authority in relation to import and export of animal products to and from the province. The authority will formulate policies and frame relevant rules and regulations for all livestock-related activities in the province.

Legislation - The Sindh Livestock Registration and Trade Authority Act, 2017

The act was published on January 2, 2018. It provides legal basis for establishment of an authority for registration, tagging and identification and development of the activities related to livestock products. This authority will strive to improve existing livestock sector practices in line with the prevailing international standards for trade and international marketability from the province of Sindh. Under the act it is mandatory that during transportation of livestock a health certificate must accompany. It asserts the traceability of livestock and processed meat throughout the supply chain.

Functions

It will also direct necessary investigations and inquiries where provisions of this Act and rules and regulations have been violated. Other functions of the authority include animal welfare, reviewing the hygiene conditions of slaughterhouses, work for animal nutrition, disease research and vaccine production, elimination of diseases, food and feed safety, livestock breeding and husbandry, livestock research and training for butchers.

Veterinary Services, Karachi Metropolitan Corporation

Under the purview of The Sindh Local Government Act, 2013 the municipal corporations are required to establish slaughter houses in their areas. In Sindh province, Karachi Metropolitan Corporation conforms to this regulation through running slaughter houses under the supervision of Veterinary Services Department.

Legislations

The Sindh Local Government Act, 2013

This law was enacted as an act of the Legislature of Sindh in August 2013. This law demands from local governments i.e. Corporation, Municipal Committee or Town Committee to provide and maintain one or more slaughter houses. It also describes the mechanism for disposal of dead animals. Slaughtering of animals except in accordance with this Act or rules or bye-laws is declared as an offence under the provisions of Schedule VI of this law.

Sind Animals Slaughter Control Act, 1963

The purpose of this law is to prohibit the slaughter of useful animals and to regulate the slaughter of other animals. This law puts restrictions on slaughter of animals on certain days. This law requires the veterinary officer to inspect and approve the animal for slaughtering. Any useful animal is not permitted to be slaughtered.

Organisational structure and functions

Department is answerable to Mayor Karachi, working under the control of Director Veterinary Services (BPS-19). Different sections are working at the department i.e. License branch, Field services (round team), Slaughter houses section. Each section is being supervised by a Deputy Director. Description and organizational structure of sections and their functions is given below:

License issuing section

This branch has the responsibility to issue the licenses to meat shops. At present four veterinarians are serving at license branch with around 30 staff members. Every shop is required to pay annual fee (Rs. 6000/- since 2018) for getting license to operate. Shop owner is required to sale beef and mutton meat slaughtered only at KMC owned slaughterhouse and to maintain hygienic condition at the shop. The detail SOPs are under compilation for enforcement at meat shops. License Branch has compiled a database of meat shops in Karachi. At present 18000 meat shops are operational in the metropolis. Out of these shops 8000 are selling only chicken, 6000 are selling beef whereas rest are selling mix of beef and mutton and sometimes chicken also.

Slaughter houses section

At present there are three slaughter houses under the control of KMC. These are located at Cattle Colony Landhi, North Karachi and Orangi Town areas. Seven veterinarians are serving at slaughter houses with the responsibility to perform ante mortem and post mortem inspections and to strictly implement the meatless day restriction on each Tuesday and Wednesday. The regulations described in Sind Animals Slaughter Control Act, 1963 are being implemented at all slaughterhouses.

The slaughter house at Cattle Colony Landhi is the largest and oldest one. In 1970 Czechoslovakia helped to establish this slaughter house at Karachi along two others i.e. at Lahore and Dhaka. The total area of slaughter house is 101 acres with per day slaughter capacity of 4000 large animals and 10000 small animals. Five veterinarians are deputed at this slaughter house to supervise the operation.

North Karachi slaughter house is located in Industrial Area at 1 acre piece of land. This slaughter house has the slaughtering capacity of 500 cattle and 2000 small animals. Two veterinarians are deputed here.

Another slaughterhouse is located at Orangi town No. 11 at an area of 20 acres. However this facility is non-operational.

Field services (Round Team)

Meat quality control component is also being handled through visits of field team to meat shops. Two veterinarians are serving at round team. This team visits different areas of the city on daily basis to inspect the quality of meat at sale, ensuring that meat on sale is from animal slaughtered at registered slaughter house as well as hygiene at meat shop. Team also inspect the meat in supply chain and has the authority to take immediate strict action in case of any violation of rules is observed.

Areas of improvement

1. Cold supply chain does not exist at present. Through amendments in bylaws, it should be mandatory to handle meat in cold chain.
2. SOPs for meat shops should be developed in line to Good Manufacturing Practices requirements. These should be updated and fulfill the modern day needs.
3. Training on modern meat handling and slaughtering practices are required.
4. Officers and lower staff performing field services should be equipped with modern gears, uniform, kits to enhance efficiency and outlook.
5. Field teams should be accompanied by a lab person to collect samples for microbiological testing and to perform on site testing.
6. Laboratories at slaughter houses are non-functional, these should be upgraded to be able to offer services for compliance to the global requirements.
7. Self-slaughtering without any animal health inspection should be strictly banned. At present 70% slaughtering is being done outside the designated slaughter house facilities.
8. Renovation of slaughter houses is required on modern lines. Machinery is obsolete thus replacement is required. Landhi Cattle Colony Slaughter House was renovated in 2007. In order to perform this renovation a shed was constructed as alternative arrangement for slaughtering to use till the renovation completes. The same shed is in use for slaughtering operation, whereas main building is ceased to operate. Restoration of operation at main building is required.
9. The veterinary services should be strengthened through induction of veterinarians under the direct control of a veterinarian as director.

Weights and Measures Wing (Agricultural, Supply and Prices Department)

Legislation

Measurement traceability is of utmost importance in trade activities. To cater these needs Sindh Standard Weights and Measures Enforcement Act, 1975 (Sind Act XX of 1975) was enacted in May 1976 and thereafter the Sind Standard Weights and Measures Enforcement Rules 1976 were made. Department is handling various requirements of legal metallurgy.

Organizational Structure

The Controller is our all in-charge of the department. There are 5 deputy controllers in the department, 4 out of which are performing their duties at Karachi whereas 1 is deputed in Hyderabad. In each of the 17 districts Assistant Controllers are responsible for enforcement of weight and measures rules. Inspectors are appointed to perform the field activities.

Weight and Measures Control

As per the requirement of the rules secondary standard balances are verified at least once in every 5 years from National Physical Laboratory (NPSL), Islamabad. Working standards are verified through this secondary standard balance. All weigh bridges, platform machines, and other weighing and measuring instruments used or intended to be used in transaction of trade and commerce or by a Factory or by the Food Department shall be verified and stamped in accordance with the provision of the Act and these Rules at least once in a year.

Calibration Services, PCSIR Laboratories Complex, Karachi

In order to ensure metallurgical traceability, calibration of equipment is vital. At present, one laboratory is offering ISO-17025 accredited services in Sindh i.e. PCSIR Laboratories Complex, Karachi. Whereas a number of non-accredited service providers are also offering their services in the field of equipment calibration.

Calibration Lab was established at PCSIR Labs Complex, Karachi in order to provide quality and cost effective services to the Industries, traders and exporters. These services are traceable to National and International Standards at NPSL Pakistan. Calibration laboratory is accredited under ISO/IEC 17025:2005 by PNAC. The calibration services cover a wide range of Metrological parameters. The laboratory is equipped with state of art equipment to provide technical assistance and calibration services to industry.

Services Available

- Dimensional Measurement
- Volumetric Measurement
- Mass & Force Measurement
- Temperature Measurement
- Electrical Measurement
- Time Frequency Measurement
- Pressure & Hydrostatic Measurement

Other departments involved IN TBT MEASURES in Sindh

Implementation and promotion of standards

In Sindh province there is no mandatory requirement for implementation of any quality or social compliance standards in agriculture sector. However many standards are being implemented by the farmers and processors on voluntary grounds due to various external reasons. Demand by the buyer is one reason whereas using the certification as marketing tool is another one. The major buyers however have created some awareness and demand for standards implementation. Metro Cash and Carry is one such example elaborated as below.

Metro Cash and Carry

Metro Cash and Carry has three super stores in Karachi city. These are the only stores situated in the Sindh province. Metro is famous for its quality products. One of its product sections is Fresh Fruit and Vegetables Section. Metro has the vendor selection procedure.

In case of fruits and vegetable supplies, globally Metro requires FSSC 22000 or Global GAP certificate along assessment on Metro Assessment System. Company encourages its supplier to get certified on these standards. However in Pakistan all of the stuff is coming from these vendors who are performing sorting and grading of produce at their grading facilities. Neither of them is carrying FSSC 22000 or Global GAP certificate. However these are assessed on MASS (Metro Assessment System).

Metro performs microbiological testing of perishable fruits and vegetables, 6-7 times a year based on risk assessment, whereas semi perishable vegetables are checked for sprouting and visible fungal growth. The

vendors are visited once in a quarter year. It is also required that transportation of goods should be in covered vans.

Meat is being received from approved vendor. Around 20% of meat carcasses are from animals slaughtered at a meat company. Remaining portion is from the vendors slaughtering animals at Govt. slaughter house. It is required that meat should be transported through cold supply vans. Occasionally meat is tested for microbiological, physical and chemical parameters.

Other Stores

Other super stores in Sindh Carefore, Chase, Imtiaz etc. are doing the opportunity buying, based on optimum quality at best rates. Any quality standard is not implemented.

Food Chains

Various food chains are usually buying the raw materials in frozen form especially potato fries, capsicum etc. Therefore the standards pertaining to frozen food regime e.g. FSSC 22000, ISO 22000 or HACCP are implemented in that case.

Recommendations for horticulture sector

Food safety and quality in fruit and vegetable sector

SPS Control at Provincial Level

In Sindh control of SPS related issues in local trade is quite weak or even absent. Pakistan lacks coherent strategy for SPS Management in relation to its trade. To bridge the gap, a National Animal and Plant Health Inspection Service (NAPHIS), was proposed and paper work was completed many years ago. After 18th amendment this subject became provincial matter and NAPHIS idea could not be materialized. Existing Plant Protection Department is a federal department to handle plant health issues at import and export level. Therefore no role defined for DPP to control plant diseases.

An authoritative control is required to be established at provincial level to handle SPS measures in local trade on risk assessment basis. Facility improvement and capacity building measures are required to be undertaken simultaneously for such authority.

Sensitization of Farmers

Farmers are required to be sensitized regarding quality, safety and grading standard requirements for their fruits and vegetable produce. Provincial agriculture extension department can play its role. However Agri Extension Department is required to be supported with relevant resources to effectively disseminate information at root level.

Grading System

Fruits and vegetable grading does not exist in the province. Many years ago Agricultural & Livestock Products Marketing and Grading Department was in service with its head office at Karachi. It was having mandate to develop standards for agriculture and livestock products grading. Later this department was dissolved and AMIS was raised in Punjab. In Sindh province no such department exists to develop or enforce the grading mechanism for horticulture and livestock produces. Sindh Enterprise Development Fund has developed a grading mechanism for chillies at Kunri and linked it with financial benefits for farmers. This model has been proven as successful intervention.

It is worth mentioning here that a daily list of rates for fruits and vegetables are updated by Office of the Commissioner Karachi Division. The rates are on grades basis with higher prices for higher grade. However

in market place the grades are based on one's visual perception and no objective measurement is available for grades.



کمشنر کراچی ڈویژن

پرائس لسٹ برائے سبزیاں، ترکاری

Saturday, September 28, 2019

Two grades of potato are mentioned in price list with huge price difference but no description of grades available even with authorities

بازار برائے کلو	بجٹ بازار برائے کلو	مطری برائے کلو	نوع	#	بازار برائے کلو	بجٹ بازار برائے کلو	مطری برائے کلو	نوع	#
147	142	140	لہسن - تھمت دسکنی دوئم درجہ	1	30	30	28	آگورچہ اول	1
169	162	160	لہسن - پانچ پاکستانی	2	22	21	20	آگورچہ دوئم	2
231	222	220	اورک - بغیر دہلی اول درجہ چائے	43	30	30	28	لال آگورچہ اول	3
#VALUE!	#VALUE!	-	اورک - بغیر دہلی اول درجہ ناک	44	22	21	20	لال آگورچہ دوئم	4
157	152	150	اورک - بغیر دہلی دوئم درجہ	45	70	67	65	پتاز بڑی	5
105	102	100	شملہ - مرچ اول درجہ	46	42	42	40	پتاز چھوٹی	6
85	82	80	شملہ - مرچ دوئم درجہ	47	75	72	70	پھول گوبھی درجہ اول	7
147	142	140	مرچ - شیزوئی	48	52	52	50	پھول گوبھی درجہ دوئم	8

Improving further the regulatory framework

In order to sustain the results of the GRASP project, it is essential that the provincial regulatory set up adopt the necessary legislations in line with the regional and international provisions and thereby complement the regulatory framework on SPS. The regulatory framework should be based on real time risk assessment basis rather than borrowing regulations from one or other place. The application of the legislation by setting up concrete implementation actions for the technical control structures should also be ensured.

Current PS Regulations Require to be Updated

It is pertinent to note that there are number of Pakistan Standards require immediate revision. In certain categories of food and agriculture standards, necessary reviews have been made over the years. However many standards are required to be brought in line with latest scientific developments in the field of food safety and quality. One such example of outdated standards is Pakistan Standard Specifications for Maximum Limits for Pesticides Residues (PS 2023: 1988). With the passage of time, the trends in use of pesticides have been altered, new pesticides are also introduced. Whereas existing rules are more than 30 years old. To bring them at par with latest scientific knowledge such standards are required to be updated to fulfill SFA requirements for modern and updated standards for mandatory compliance.

Enforcement of Food Safety Rules

SFA is responsible to ensure implementation of food safety rules in entire province. Currently emphasis is on hygiene related rules, whereas pesticide residues, heavy metals etc. are not at priority of authority at yet due to many reasons. SFA is required to be strengthened to undertake all these control with full zeal, in entire province. There are gaps identified during study for the improvement of structure, function and relevant provisions of the regulations.

1. SFA is newly established authority therefore activities are at preliminary level and more focused on hygiene rather than addressing real threats pertaining to food safety.
2. Capacity building of management and food safety control staff (food safety officers) is highly desired to make them align with global food safety trends. Study visits of management to modern metropolis of the world exercising food safety control at fullest will go a long way to develop stringent food safety control in Sindh. Whereas training sessions for food safety officers on various aspects of their activities and educational visits to nearby global destinations having strict food safety control will be useful.

3. SFA is lacking research and development component. In order to aggravate research activities on topics related to food safety in context of Sindh province, some sort of budgetary support is needed.
4. Support for SFA laboratory is required for setting it up on modern lines. The lab should be established creating self-sustainability provisions. In order to enhance its competence ISO-17025 accreditation should be achieved through input of required support.
5. In Punjab and KPK mobile labs are provided to Food Authorities. It improves the food safety control. Similar provision should be made for SFA for efficiency improvement.
6. The curriculum and services of training school is required to be set on sound scientific standards.
7. Implementation of latest information technology tools for food safety control at SFA is highly needed. E-certification, real time food safety officers activity monitoring and data feed, laboratory results uploading etc. etc. could be part of this information technology revolution. A virtual dashboard development along required hardware provision will help boost the activities of SFA.

Testing Facilities for Fruits and Vegetables

Fruits and vegetable testing services are available in the province for safety parameters, however testing laboratories should be supported to enhance their capacity or provided with assistance to extend their service areas and reduce the cost.

Weights and Measures

At present Weights and Measures Wing is handling masses and liquids measurement verification. Any quality calibration support for temperature pressure gauges etc. is not available from department due to its existing load of work. Further actions should be taken to improve the efficiency and service range of this department.

Food Safety Control for Fresh Fruits and Vegetables

There exists poor control for food safety issues in fresh fruits and vegetables. Neither SFA regulates nor do market committees have any intervention to control toxins, MRLs, microbiological hazards, heavy metals etc. in fresh produce. This neglected segment of food safety requires to be handled promptly to safeguard human health. Codex Alimentarius has developed a number of standards for this purpose. Fortunately SFA has provision in its regulations to directly adopt these standards. Therefore with due diligence, an enforcement mechanism should be devised to initiate this control endeavor. A list of few relevant standards is given below, whereas number of other standards and guidelines are available as well for other fresh produces:

S. No.	Standard For	Standard No.
1	Bananas	CODEX STAN 205-1997
2	Chilli Peppers	CODEX STAN 307-2011
3	Dates	CODEX STAN 143-1985
4	Guava	CODEX STAN 215-1999
5	Mangoes	CODEX STAN 184-1993
6	Tomatoes	CODEX STAN 303-2011

Compliance of produce quality standards in domestic market

It has remained a challenge over the period of decades for international development agencies to develop a culture of produce quality standards compliance in domestic market. The global quality standards should be complied with right from the farm level. Better production and postharvest handling practices will gradually improve the quality of produce in domestic market. The produce will become compatible to international

market needs as well. It will fetch better returns for farmer and exporter. It has previously been established by another Swiss Project for Horticulture Promotion (PHP) in stone fruit industry in Khyber Pakhtunkhwa.

Revision of Pakistan Standard for Pesticide Residues in Agriculture Products

Pesticide residue (MRL) control is being exercised by food authorities. PS 2023:1998 is the Pakistan Standard for maximum limits of pesticide residues in any food. The other product specific food standards are used to refer to this standard. Therefore PS: 2023 could be considered as reference standard. Thus it is required to be more meaningful and applicable.

In reality the stakeholders are naive to determine specifically which pesticide compounds are required to be controlled in the value chain, therefore sometimes:

- The testing lab is asked to perform general MRL tests as per their available facility and convenience.
- The importers or traders are unable to specify their requirements. In response, the clients generally enlist a large number of compounds. Among these compounds, most are not being applied on the focused crop or even not licensed in Pakistan. Thereby, extra money, efforts and time are consumed for nothing.
- Contrarily, testing labs guide the customers as per international standards which are sometimes not matchable to our requirements.

In this scenario, PS: 2023 requires major revision. It is outdated and very brief as well as it did not satisfy the needs of stakeholders and society. Therefore, a new, flexible, meaningful and specifically applicable standard is required to be developed in which rather than enlisting the agriculture commodities with respect to a very few pesticide compounds (as in PS 2023), better to enlist the pesticide compound with respect to each commodity along with MRL.

To achieve this task following steps are required to be taken in order to develop a meaningful and applicable standard:

1. Data collection from:
 - National Regulators i.e. DPP regarding the number of pesticides licensed, available and being used in Pakistan as well as data regarding their recommendations for the specific usage of pesticides, if any.
 - Pesticide manufacturers and importers for the respective usage and their recommendations / specifications for pesticides.
 - Market (distributors) for their recommendation for pesticides usage on crops.
 - Farmers for real application detail.
2. Validation of gathered, compiled and summarized data by:
 - Random sampling and testing of each commodity available in the market.
 - Comparison with international standards.
3. Acquisition of respective MRL limits from Codex or other international / regional standards, as it is not feasible to generate such data.
4. Thorough risk assessment.
5. Development of commodity wise standard for MRL.

Recommendations for livestock sector

Reforms in Food Safety and Quality System in Livestock Sector

Enactment of Livestock Related Laws

At present many laws are in process governing to livestock sector e.g. Sindh Food and Fodder Act, Sindh Pasture Land Protection Act, Sindh Animal Health Act. Enactment of these and relevant laws on fast tract is

needed to improve the regulatory landscape of province. Further support of legal experts is required to draft the laws. The technical details are incorporated by experts in the laws, however only legal experts are conversant with legal terminology to use in the draft of law.

Mandatory Animal Vaccination

Animal vaccination is not mandatory in the province. To control diseases, law should be enacted for the purpose.

Sensitization of Farmers

Farmers should be well aware of the law, livestock department by certain support i.e. human resource, operational cost sharing and provision of other resources, can perform this activity.

Weight and Measures

In milk measuring devices, weight and measures wing is required to increase its role.

Provincial quarantine department

Animal quarantine department belongs to federal government, in order to fix control at entry points of province, a provincial quarantine department should hold its control to safe guard the local herd.

Food Safety Authority Role

Role of Food Safety Authority in province is limited to few urban areas. It is required to be enhanced to address food quality and safety issues being faced by rural communities.

Improvement of Current Labs Infrastructure

Current lab infrastructure is required to be improved by setting up a central testing lab with its subsidiaries at divisional and district level to provide analytical support to farmers.

Testing Capacity Enhancement

Province has testing facility for protozoan, endo and ecto parasitic and bacterial diseases. However viral testing is not available. Capacity enhancement of lab is needed to undertake this kind of testing in Sindh.

Mobility of Animal Health Services Staff

The veterinary and para- veterinary staff lacks the mobility component in their services provision. These require bikes/vehicles to reach to the door step of the farmer. One of the success story of effect of improvement in mobility on results is from Tharparkar district, where seven mobile labs were provided, since then no major outbreak of any disease has occurred.

Meat Categorization

Standards for meat category identification are not developed, therefore no premium price is available for the quality product. Standards are required to be developed.

Model Slaughter Houses/Meat Shops

At divisional level such slaughter houses should be established, which can be replicated at district level as well. For this purpose the guidelines for establishment of government abattoir should be formulated first. It will pave the way for establishment of first class slaughter houses. Modern Meat Shop model is also required to be developed and established at district level to replicate.

Animals Feed Stuff and Compound Feed Regulations

It is necessary to regulate the manufacture, storage, supply, transport for sale and marketing of feed stuff and compound feed; to ensure standards of production and quality of feed stuff; to check adulteration and misbranding of poultry and livestock feed stuff and compound feed ingredients; and, to deal with ancillary matters. The Punjab Animals Feed Stuff and Compound Feed Act 2016 (Act LVII of 2016) is enacted for enforcing this mandate in Punjab province. The provision of this act states:

- (1) All feed stuff and compound feed shall conform to the specifications and standards as prescribed.
- (2) The manufacturer of any feed stuff and compound feed shall ensure that a label shall be displayed on the feed bag or packing containing particulars of product, date of manufacturing and expiry, nutritive composition, declaration of Aflatoxin level.

Currently no such act is enforced in Sind province; it is required to be enacted here.

Recommendations on TBT measures in Sindh

Recently on August 27, 2019 Competition Commission of Pakistan, Government of Pakistan issued a policy note (File No: 52/Food Laws/SY/CCP/2019) for Sindh province to enhance economic activity in agriculture commodities sector suggesting to address a number of TBT related issues being faced by local enterprises. These valuable suggestions are summarized as below:

Up gradation and consolidation of laws

At the provincial level there are different laws pertaining to essential commodities, food stuffs, agriculture produce markets and godowns registration. These laws are implemented by different departments. All provincial laws need to be upgraded and consolidated, keeping in view the current conditions, under one law with a clear responsibilities for implementation under a single authority, with the following salient features:

- i. **Uniform formula for price determination:** The new consolidated law should provide for a uniform formula for price determination throughout the province.
- ii. Price controls on essential commodities as well as the food stuffs should be applied at the **wholesale level** which can be monitored easily as compared to the vast retail sector, given the fact that wholesalers are located in *mandis* and have relatively uniform operating cost.
- iii. Rather than recommending a single price for one commodity, it is recommended that the price determinations be made with reference to **quality of commodities** through **range/band of prices**. Basic quality standards should be identified i.e. the minimum range/band in the price would be for average quality and the maximum range/band could be for higher quality.

Agriculture Supermarkets

In order to improve the access of the farmer to the market, the law should provide for establishing of '*agriculture supermarkets*' on public private partnership, where farmers can display and sell their products at the price set out by government. These agriculture supermarkets can bring about the efficiency in the demand and supply situation of the agricultural produce.

Incentivize the Minimum Support Price (MSP):

The Minimum Support Prices (MSP) mechanism should be employed to incentivize farmers to cultivate crops that are likely to be in high demand in the future but are currently facing low prices and shortage. For example MSP should be offered on Pulses/lentils in order to increase their cultivation in Pakistan and to avoid reliance on imports. Further, in order to achieve coherence in this regard, the incentivized MSP be deliberated, preferably, by National Economic Council (NEC) and may also be reviewed accordingly from time to time.

Tax Incentives for Food Processing and Cold chains:

In order to reduce wastage of perishable commodities and establish a new economic activity, food processing and allied industries should be encouraged which *inter alia* include cold chains. Tax incentives for establishing this particular industry would facilitate the growth of local industry and reduce the reliance on imports.

Exemption of Hyper/Super Market from application of Price Control Laws:

The aforesaid price control laws should not be applied on Hyper/ Super market for the following reasons:

- (i) Supermarket chain stores/hypermarkets bring in foreign investment and introduce international best practices in the food supply chain especially in areas such as post-harvesting, maintenance of cold chain processing of foodstuff.
- (ii) Most of these stores implement a modern agriculture supply chain under which perishable items are transported and stored in a temperature controlled environment. Fruits and vegetables are sold as per international standards such as **Hazard Analysis of Critical Control Points (HACCP)**. These processes require huge investments and forcing these stores to abide by low prices acts as a disincentive.
- (iii) All non-perishable items such as pulses and spices are graded, cleaned and packaged. The maintenance of better quality and grading offered by supermarkets results in higher costs as compared to the traditional model. Therefore, implementing the same prices for a product that has been graded and packed according to international standards is not justifiable.
- (iv) Supermarket chains offer an amenable shopping experience to consumers. Also much effort is expended at the back end of the business to ensure that a broad range of goods reach shelves in a timely and efficient manner. All of these features translate into higher overhead costs for supermarket chains/ stores, making it difficult for these stores to continue its operations within the current price control regime.

Strengthening of Weight and Measures Inspectorate

During this study following gaps with respect to weight and measures inspectorate are identified:

- Rules are more than 40 years old. Fees requirements have been updated however penalties regime requires similar intervention. Overall law requires thorough revision.
- Currently one Assistant Controller assisted by lab attendants is performing duties at the laboratory. Lab up gradation is highly desired. Staff enhancement, capacity development and trainings are needed.
- Achieving ISO-17025 accreditation status can help to improve competence of the lab. It will further assist to improve precision in activities.
- Mobile labs are not available. Provision of mobile labs can help to improve the efficiency of the department.
- Department has limited availability of vehicles. Therefore mobility suffers.

APPENDICES

Appendix I Overview of organizations engaged in SPS control for domestic trade

Organization	SPS Control Responsibility for Local Trade
Sindh Food Authority	Food safety and quality control under Sindh Food Authority Act, 2016.
Department of Plant Protection	Control on Import of food and plant materials under Pakistan Plant Quarantine Act 1976 to protect indigenous agriculture.
Pakistan Standard and Quality Control Authority	Sampling, testing and certification of imported foods for verification of compliance to Pakistan Standard requirements to protect consumer health.
Agriculture Extension	Control of quality of pesticide products as per provisions of Agricultural Pesticide Ordinance, 1971.
Animal Quarantine Department	It controls import of any diseased animal in the country under Pakistan Animal Quarantine (Import and export of animals and animal products) Act, 1979 and Amendment Act, 1985.
Directorate of Livestock	The control and treatment of animals diseases under Animal Contagious Diseases Act 1948
Directorate of Breeding	Protection and promotion of indigenous breeds under the provisions of Sindh Livestock Breeding Act, 2016
The Sindh Institute of Animal Health, Karachi	Earlier it was Sindh Poultry Vaccine Center. It has been established through the Sindh Institute of Animal Health at Karachi Act, 2018 to develop and spread vaccines for livestock as well.
Veterinary Services, Karachi Metropolitan Corporation	Animal slaughtering and meat safety and hygiene control under Sindh Local Government Act , 2013 and West Pakistan Animals Slaughter Control Act , 1963.
Weights and Measures	Check of weights and measures as per Sindh Standard Weights and Measures Enforcement Act, 1975 (Sind Act XX of 1975).
Bureau of Supply and Prices	Control of prices and grading of essential commodities under the provisions of the Sindh Essential Commodities Price Control and Prevention of Profiteering and Hoarding Act, 2005, The Sindh Wholesale Agricultural Produce Markets (Development & Regulation) Act 2010 and The Sindh Registration of Godowns Act, 1995.

Appendix II List of regulations/laws with respective hyperlinks

Regulations	Hyperlinks
Pakistan Plant Quarantine Act 1976	http://www.na.gov.pk/uploads/documents/1493790209_394.pdf
Pakistan Plant Quarantine Rules 1967	http://www.vertic.org/media/National%20Legislation/Pakistan/PK_Plant_Quarantine_Act_1976.pdf
Sindh Food Authority Act, 2016 (Sindh Act No. XIV of 2017)	http://www.pas.gov.pk/uploads/acts/Sindh%20Act%20No.XIV%20of%202017.pdf
Sindh Food Authority Regulations, 2018	http://sfa.gos.pk/wp-content/uploads/2018/12/Sindh-Food-Authority-Regulations.pdf
Agricultural Pesticides Rules, 1973 amendment 2007	https://punjabcode.punjab.gov.pk/uploads/articles/agriculture-pesticides-rules-1973-pdf.pdf http://extwprlegs1.fao.org/docs/pdf/pak99986.pdf
Agricultural Pesticide Ordinance, 1971	https://punjabcode.punjab.gov.pk/uploads/articles/agriculture-pesticides-rules-1973-pdf.pdf
Pakistan Animal Quarantine (Import and export of animals and animal products) Act, 1979 and Amendment Act, 1985.	http://www.vertic.org/media/National%20Legislation/Pakistan/PK_Animal_Quarantine_Ordinance_1979.pdf http://www.na.gov.pk/uploads/documents/1336450825_829.pdf
Pakistan Animal Quarantine (Import and export of animals and animal products) Rules, 1980.	
Animal Contagious Diseases Act 1948	http://sindhlaws.gov.pk/setup/publications/PUB-14-000052.pdf
The Sindh Livestock Breeding Act, 2016	http://www.pas.gov.pk/uploads/acts/Sindh%20Act%20No.XVI%20of%202017.pdf
The Sindh Institute of Animal Health at Karachi Act, 2018	http://sindhlaws.gov.pk/setup/publications/PUB-18-000052.pdf
The Sindh Livestock Registration and Trade Authority Act, 2017	http://sindhlaws.gov.pk/setup/publications/PUB-18-000119.pdf
The Sindh Local Government Act, 2013	http://www.pas.gov.pk/uploads/acts/Sindh%20Act%20No.XLII%20of%202013.pdf
West Pakistan Animals Slaughter Control Act, 1963	http://kpcode.kp.gov.pk/uploads/1963_3_THE_WEST_PAKISTAN_ANIMALS_SLAUGHTER_CONTROL_ACT_1963.pdf
Sindh Agriculture Policy (2018-2030)	http://www.wsip.com.pk/documents/publications/Sindh%20Agriculture%20Policy%20(2018%20-%202030).pdf
Sindh Standard Weights and Measures Enforcement Act, 1975 (Sindh Act XX of 1975)	http://sindhlaws.gov.pk/setup/publications_SindhCode/PUB-15-000282.pdf
The Sindh Essential Commodities Price Control and Prevention of Profiteering and Hoarding Act, 2005,	http://www.pas.gov.pk/uploads/acts/Sindh%20Act%20No.IX%20of%202006.pdf
The Sindh Wholesale Agricultural Produce Markets (Development & Regulation) Act 2010	http://sindhlaws.gov.pk/setup/publications_SindhCode/PUB-16-000209.pdf
The Sindh Registration of Godowns Act, 1995	http://sindhlaws.gov.pk/setup/publications_SindhCode/PUB-15-000833.pdf

Appendix III Chemical testing laboratories for fruits and vegetables

Laboratories Parameters	PCSIR Labs. Complex, Karachi	SGS Pakistan, Karachi	Industrial Analytical Center, ICCBS, Karachi	Intertek Pakistan, Karachi	Global Environmental Lab Pvt. Ltd. Karachi	Grain Quality Testing Lab., PARC, Karachi
P: public sector	02 (P)	07	39 (P)	40	74	A1(P)
Pesticide Residues	•	-	•	-	-	•
Microbiological Analysis	•	•	•	•	•	•
Heavy Metals	•	•	•	•	•	•
Protein	•	•	•	•	•	•
Fat	•	•	•	•	•	•
Fiber	•	•	•	•	•	•
Moisture	•	•	•	•	•	•
Carbohydrates	•	•	•	•	•	•
Laboratories Parameters	Qarshi Research Int. Labs. Pvt. Ltd. Hattar	Grain Quality Testing Lab., FSRI, PARC, Islamabad	PCSIR Labs. Complex, Peshawar	PCSIR Labs. Complex, Lahore	Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad	National Institute for Bio-technology & Genetic Eng. (NIBGE), Faisalabad
	03	47 (P)	19 (P)	24 (P)	119 (P)	A2 (P)
Pesticide Residues	-	-	-	•	•	-
Microbiological Analysis	•	•	•	•	•	•
Heavy Metals	•	•	•	•	•	•
Protein	•	•	•	•	•	•
Fat	•	•	•	•	•	•
Fiber	•	•	•	•	•	•
Moisture	•	•	•	•	•	•
Carbohydrates	•	•	•	•	•	•

Appendix IV Chemical testing laboratories for meat products

Laboratories Parameters	PCSIR Labs. Complex, Karachi	SGS Pakistan, Karachi	Industrial Analytical Center, ICCBS, Karachi	Intertek Pakistan, Karachi	Global Environmental Lab Pvt. Ltd. Karachi	Grain Quality Testing Lab., PARC, Karachi
P = public	02 (P)	07	39 (P)	40	74	A1(P)
Microbiological Analysis	•	•	•	•	•	•
Heavy Metals	•	•	•	•	•	•
Protein	•	•	•	•	•	•
Fat	•	•	•	•	•	•
Fiber	•	•	•	•	•	•
Moisture	•	•	•	•	•	•
Carbohydrates	•	•	•	•	•	•
Antibiotic Residues	•	•	•			-
Laboratories Parameters	Qarshi Research Int. Labs. Pvt. Ltd. Hattar	Grain Quality Testing Lab., FSRI, PARC, Islamabad	PCSIR Labs. Complex, Peshawar	PCSIR Labs. Complex, Lahore	Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad	National Institute for Bio-technology & Genetic Eng. (NIBGE), Faisalabad
	03	47 (P)	19 (P)	24 (P)	119 (P)	A2 (P)
Microbiological Analysis	•	•	•	•	•	•
Heavy Metals	•	•	•	•	•	•
Protein	•	•	•	•	•	•
Fat	•	•	•	•	•	•
Fiber	•	•	•	•	•	•
Moisture	•	•	•	•	•	•
Carbohydrates	•	•	•	•	•	•
Antibiotic Residues	•			•	•	-