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PACE Policy Working Paper—Restructuring and Revamping of Agriculture Policy Institute

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Restructuring and Revamping of Agriculture Policy Institute

Ministry of National Food Security and Research
Government of Pakistan

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Authored by:

Abdul Wajid Rana and Zeeshan Haider

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Abdul Wajid Rana is the country Program Leader of the International Food Policy Research Institute – Pakistan (IFPRI).

Zeeshan Haider (Z.Haider@cgiar.org) is a Research Analyst-I in Pakistan Agriculture Capacity Enhancement project (PACE), International Food Policy Research Institute (IFPRI), Islamabad, Pakistan.

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Introduction

1.1 Conceptual Context

Agriculture, worldwide, has seen remarkable transformation in farming practices, institutional frameworks and policies during the last three decades. Dynamic international markets and the diffusion of bioinformatics technology are shifting farming towards a new organizational model. Production systems are seeking new forms of coordination and control, increasing demand for traceability of origin, and greater integration into international markets. Public research programs are looking beyond mono-cropping systems toward integration of farming, cattle-raising and forestry and whole agriculture innovation system. Global positioning systems (GPS) and computerized agricultural machinery linked via satellites is promoting precision agriculture where inputs are calibrated exactly to the differences in soil and farm activities while farmers are looking for their linkages with output markets for their produce. Commitments to international agreements and conventions regarding biodiversity, climate change, food security, and land use are creating a new bottom line for agricultural practices. This necessitates a new institutional and regulatory framework.

1.2 Country Context

2. **Agriculture is a key contributor to the economy in Pakistan, yet agriculture growth is languishing.** Nationally, agriculture accounts for 19% of GDP, employs 44% of labor force, delivers 75-80% of the total value of Pakistan's exports, directly and indirectly. Sector growth fell from 3.3% over the last decade to nearly zero in FY2016 (0.15%). It demonstrated some signs of recovery in FY2018 (3.94%) but declined to 0.85% in FY2019. Crop and livestock productivity are lower than in other Asian countries. Except for maize, crop yields have barely risen in decade.¹ The factors limiting agriculture growth include poor adoption of modern technologies, poor seed quality and service delivery, and poorly functioning agricultural markets. Above all, lagging agricultural growth can be traced to subsidies, agricultural support prices, caps on meat and milk, low investment that too in traditional crops at the expense of high-value agriculture, and weakening institutions (policy, research, and extension), inefficient water use and low water productivity, weak linkages with global value chains, and weakening institutions (policy, research, and extension).

3. **Now that Pakistan has achieved self-sufficiency in wheat, it needs to spur further agricultural transformation for higher growth.** The goal of becoming self-sufficient in food grain (especially wheat) production has long underpinned policies, investment priorities, and public expenditures in agriculture, but now Pakistan needs to evaluate options for future growth in light of several factors: (a) the rapid shift in domestic demand for HVA products; (b) the largely

¹ Government of Pakistan, Economic Survey of Pakistan, 2018-19,

unexploited comparative advantage for several of those products, which can provide opportunities to generate export revenue and jobs; (c) lack of options for new sources of irrigation water and improving efficient use of available water; and (d) the need for production systems to become more resilient as climate change progresses.

4. **Agriculture requires a paradigm shift to unlock opportunities for future growth.** Pakistan could restore its agricultural competitiveness through innovations that renew growth in on-farm productivity and improve efficiency and quality throughout the post-harvest value chain. At 0.12% of agricultural gross domestic product (AgGDP), Pakistan's public expenditures on agricultural research are the lowest in the region. Most agricultural research expenditures still go to food grains, sugarcane and cotton, rather than to high-value crops and livestock products. Few resources are dedicated to post-harvest management, including value addition, quality, food safety, and nutrition. A high pay-off could be gained by redirecting public expenditures and associated policies toward the best potential investments for outcomes, with a focus on reforms in wheat, irrigation, subsidies, and marketing, and concomitant investments to improve service delivery, agricultural research and development, agricultural insurance, creating enabling environment to attract foreign investment in quality inputs, developing a regulatory regime compliant to international conventions and linking Pakistan with global value chains.

2. Institutional Change and Strengthening

5. **The role of the government in agriculture within a market-oriented economy as well as rapidly changing international economic environment is vital but limited.** Given the emerging challenges, government's role is limited to formulation of policies and regulatory regime, policy directions to guide the private sector, creating enabling environment and regulatory enforcement and addressing political economy issues. While the private sector is responsible to undertake production, marketing and distribution activities and developing value chains.

6. **New policy direction and reallocation of investments in agriculture sector will require institutional change, restructuring and revamping.** Institutions are humanly devised constraints that shape human interactions and provide the structure of formal and informal economic, political and social behavioural rules (North, 1990). Institutional change and restructuring are instruments of adjustment to changes in the socio-economic environment at the national, regional, or international levels to increase their effectiveness and efficiency in achieving their mission, performing their roles effectively, and carrying out their functions efficiently. This will necessitate institutional changes that may include:

- a. A strong policy and planning organ with an efficient and well-equipped institutional structure;
- b. Designing a robust food policy aligned with changing consumption patterns;

- c. Developing a framework for AIS System in collaboration with federal and provincial research institutions;
- d. Capacity and capability to handle international conventions and protocols including TRIPS-I and II, issues relating to Quarantine, Seed, Plant Breeders and formulate policy response;
- e. Capacity to formulate evidence-based policy formulation for consideration of the federal and provincial governments;
- f. A modern and robust research system;
- g. A strong statistical and data base system with forecasting capability;
- h. A powerful management information system for monitoring and evaluation;
- i. Capacity to strengthen cross-sectoral linkages of the relevant public institutions and agencies such as the Federal Government, Ministry of National Food Security and Research, Provincial Agriculture and Livestock Departments and other
- j. stakeholders and the private sector;
- k. Capacity to strengthen cross-sectoral linkages;
- l. A dedicated unit for private investment and joint ventures in value addition, supply chain, agro-processing and agri-business, global value chains, etc; and
- m. A highly skilled manpower which is capable of delivering trainings for agriculture, such as, drip irrigation, laser land levelling, livestock management, formal dairy and agriculture chains, grading, packaging, agribusiness management, etc.

3. Evolution and Performance of Agriculture Policy Institute (API)

3.1 Establishment of APCOM

7. **Government of Pakistan established Agriculture Price Commission (APCOM) in 1981.** It was mandated to provide evidence-based advisory services in collaboration with institutions like Pakistan Institute of Development Economics (PIDE), Pakistan Agricultural Research Council, and the Punjab Economic Research Institute to the Government on:

- Price policy of wheat, rice, cotton, sugarcane, potato, oilseed, gram, onions and such other commodities as specified by the government from time to time.
- Non-price measures to improve agricultural productivity and remove deficiencies and inefficiencies of marketing, processing, storage etc.
- Any other matter related to agricultural production and price.

3.2 From APCOM to API

8. **APCOM was restructured and designated as Agriculture Policy Institute in 2006 to become Policy Research and Data Administration arm of the Ministry of Food Security and Research.** The prime objective of the Institute is to analyze the impact of important agricultural policies on consumers, processors and exports as well as making the commodities more competitive by reducing cost of production and to assist the Ministry in formulating research based policy formulation including price stabilization for major crops focusing on the following:

- Promoting efficient and sustainable agricultural policies to raise the incomes of the farmers and to deepen growth linkages in agricultural markets.
- Creating an enabling environment for the farming and related sector to enhance employment and standard of living.
- Analyze the impacts of agricultural policies on groups such as consumers, traders, processors, and exporters and advise for policy adjustments for greater productivity and equity.
- Conduct annual input-output field surveys in main producing areas of cotton, sugarcane, rice, wheat, and tobacco crops.
- Conduct studies on emerging policy issues.
- Periodically examine processing, storage and marketing costs of agricultural commodities and recommend policies to reduce the costs and improve competitiveness Monitoring and enhancing food security at household level.
- Incorporating environmental issues and climate change in agricultural policy discourse.
- Preparing summaries for the Economic Coordination Committee on the availability of pulses in the country.

3.3. Performance of API

9. After initial successes, API had been struggling to fulfill its assigned mandate because of various factors including:

- (a) Lack of permanent leadership of the Institute (Hiring of a new Director General has been approved recently which is still in process);
- (b) Shortage of highly qualified technical staff because of attrition and hiring freeze (currently only 7 technical staff is working against 30 sanctioned posts);
- (c) Squeezing budgetary outlays;
- (d) Absence of capacity enhancement;

- (e) Knowledge gaps about emerging national and international issues and lack of international exposure.

3.4 Current Activities of API

10. Currently, API is issuing seasonal Crop Analysis Reports on four major crops. Since its inception, API has published around 260 reports mainly related to Crop Analysis and a few other research reports/papers/journals. To make these reports more analytical and innovative for the decision makers, API needs capacity enhancement and international exposure. API also conducts field surveys to work out cost of production and determining support price. Nevertheless, it is restricted to major crops, that too in Punjab and Sindh only, and horticulture is not covered. API also provides technical input, such as, statistical computation of fertilizer subsidy, WTO/TRIPS and bilateral trade related issues on need basis, representing the Government in courts, wheat subsidy program, Food Supplies Committee on Defense Planning and Federal Committee on Agriculture.

3.5 Organizational Set up and Human Resource

11. API is headed by a BPS-21 Director General, which is vacant since long and the Senior Joint Secretary of the MNFS&R is holding the additional charge. It has three divisions: (i) Production Economics Division; (ii) Agriculture Policy Division; and (iii) Agriculture Trade Division. Current staffing position of API is given below. It is evident that two-third positions of technical staff are vacant. Prolonged hiring freeze has affected API's capacity and staffing adversely. There are issues of career progression and recruitment rules which do not attract qualified technical staff. Therefore, organization not only requires restructuring but also develop recruitment and career progression framework.

Table 1: Organizational setup of API

Name of Post	BS	No. of Posts	In Position	Vacant
Technical-I				
Director General	21	1	1*	-
Chief Statistician	20	4	2	2
Deputy Chief	19	9	3**	6
Director Coordination	19	1	-	1
Assistant Chief	18	9	3**	6
System Analyst	18	1	-	1
Computer Programmer	17	2	-	2
Research Officer	17	3	2	1
Sub-Total		30	11	20
Non-Technical Staff – II				
Admin Support	1-19	71	60	10
Total		101	71	30

4. Gap Assessment of API

12. Based on the discussions with experts and API technical staff, literature review and international comparison, the following broader areas have been identified where API needs capacity enhancement.

- Evidence based research on public policy issues and recommendation for policy solutions relating to Agriculture;
- Changing food consumption pattern, Food Policy, Food Planning and Monitoring in the country;
- Analysis of WTO as well as bilateral trade related issues and proposing policy recommendations;
- Analysis of TRIPS, its impact on domestic industry and designing policy framework;
- Data compilation and management related including Food Security and Nutrition Information System as well as Essential Commodities Monitoring Platform to secure real time information for decision making and policy formulation;
- Developing policy framework for enforcement of Phytosanitary agreements and Bio-Safety Protocols;
- Policy Research on impact of climate change on Agriculture and developing policy framework for climate resilient agriculture;
- Policy Research on yield and enhancing productivity including total factor productivity, province wise;
- Policy for Agriculture clustering and development of value chains;
- Standardization and Grading for marketing agriculture produce;
- Policy framework for subsidies and making them more targeted;
- Institutional challenges and change management;
- Absence of Quantitative and Qualitative Analytical and forecasting tools;
- Absence of ICT based Monitoring and Evaluation Mechanism; and
- Mechanism to enhance staff capacity and trainings.

International peer review has also been identified as a weak link which needs to be strengthened and IFRPI can really help in this regard.

5. Need for Restructuring API

13. Currently, none of the key organizations or institutions are well staffed and equipped to lead evidence-based policy research in agricultural sector holistically. Therefore, policy formulation must rely on various organizations in an adhoc manner. Social Sciences Division of Pakistan Agricultural Research Council mainly analyzes issues related to agricultural technologies and rarely covers broader inter-sectoral linkages that are needed well-aligned to emerging international trends and reforms. Likewise, Pakistan Institute of Development Economics is not focusing on agriculture in providing the necessary policy inputs.

14. In the meantime, the Prime Minister's Task Force on Institutional Reforms in its meeting held on March 20, 2019 has proposed to transform API into Agriculture Food and Environment Policy Institute (AFEPI) broadening its mandate to food systems and environment policies. It reflects the federal government's resolve to reinvigorate the API as a center of evidence-based research on policy issues and advise the government on national and international issues relating to agriculture. Expanding API's mandate by including food and environment will require a new set of skills set and expertise. Hence, the need for restructuring API.

6. Recommendations of the Secretaries Committee

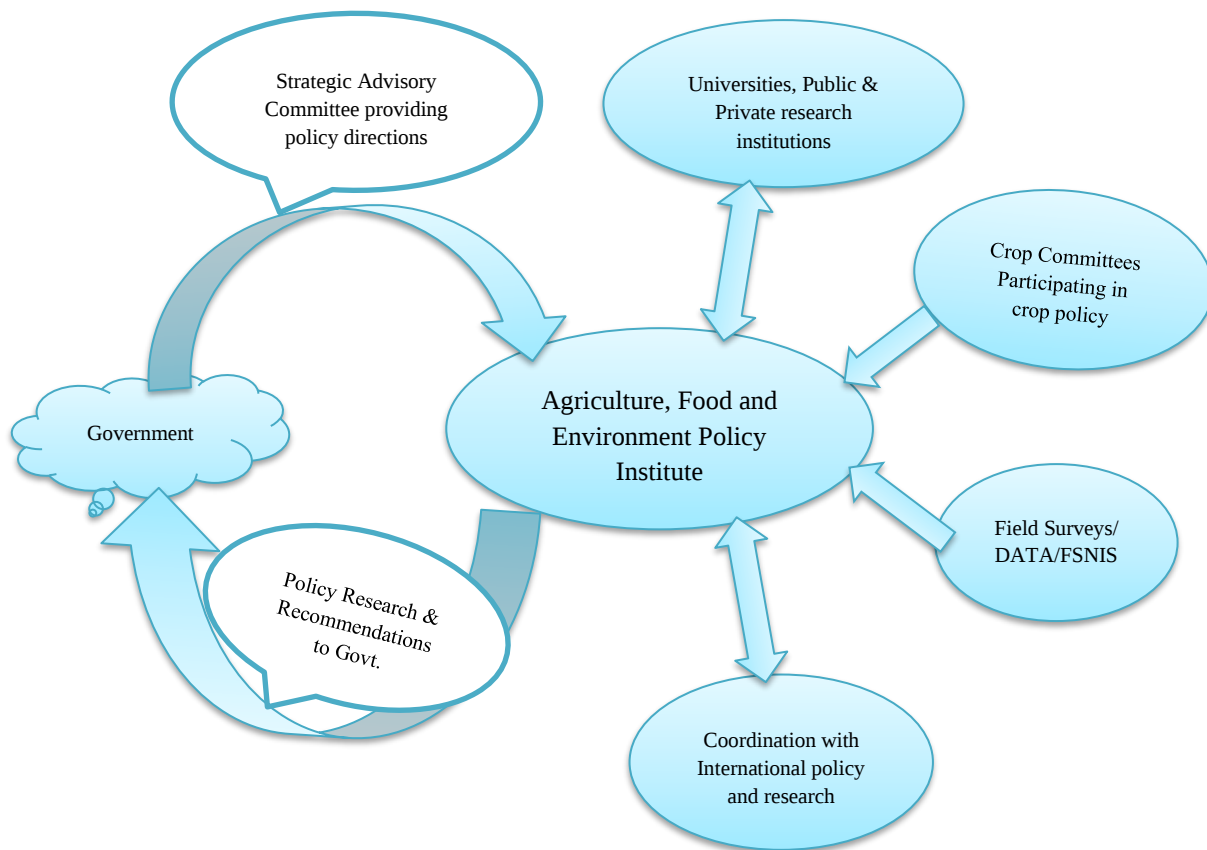
15. The Agriculture Policy Institute came under fierce criticism at a meeting of the Senate's Standing Committee on National Food Security and Research. Secretaries Committee in its meeting held on March 20, 2019 recognized the importance of API and recommended to chalk out a restructuring and revamping plan for API. The short term and long term are briefly described as follows;

- All vacant positions including DG be filled in the short term through promotion and direct recruitment. In this context, API has already submitted a reference to the ministry for advice on determination of quota to fill the vacant positions. The ministry has already initiated the recruitment of DG API, which needs to be expedited as per the API recruitment rules, 2017.
- The financial resources need to be enhanced for strengthening the institute including replacement of vehicles and office equipment and computers.

7. Proposed Restructuring of API

16. A restructured institute would aim to provide technical support to the government in the field of public policy issues relating to agriculture. The transformation of API would require (a) change in current mandate; (b) structural transformation of the institute; (c) redistribution of work; (d) enhanced financial resources; (e) technically qualified staff; and (f) employee service rules. The restructured API will create a policy adjunct to the Ministry of Food Security and Research to

support the Government of Pakistan to address public policy issues and develop policy solutions across the country in an effective manner. See Figure 1.



Accordingly, it is proposed as follows:

- 7.1 **Proposed Name:** Agriculture, Food, and Environment Policy Institute (AFEPI)
- 7.2 **Proposed Vision of API:** Lead, Catalyze and Coordinate independent strategic and policy analysis on emerging agro-food and agri-business issues, engage stakeholders and support the Federal and Provincial Governments in formulating public policy.
- 7.3 **Proposed Mission:** Provide leadership in sustainable agriculture and food systems that enhances food security, farmers' income, health and well-being of the people of Pakistan.
- 7.4 **Proposed Values:** Autonomous, Integrity, Neutral, and Professionalism
- 7.5 **Proposed Organizational Structure:** Statutory and autonomous Body under the Ministry of National Food Security and Research.

- 7.6 **Merger of Social Science Research Institute, Centre for Rural Economy, Economic Wing of the Ministry of National Food Security and Research into the proposed Statutory Body:** It is important to merge Social Science Research Institute, Center for Rural Economy and Economic Wing of MNFSR into the proposed statutory body to avoid duplication of effort, spreading resources too thin, rationalizing manpower, and maintaining single focal point for all policy research and policy solutions relating to Agriculture and Rural Development.
- 7.7 **Food Planning, Crops Forecasting and Monitoring Platform:** The proposed statutory body shall also maintain digitalized Food Planning, Crops Forecasting, pricing and monitoring Platform in collaboration with the provinces and other key Agriculture Research institutions of the country for taking timely policy decisions.
- 7.8 **Proposed Board:** Minister or Secretary of the MNFS&R as Chairman, with CEO of the statutory body, Provincial Governments Representatives, PARC, Private Sector (expertise in the agriculture, agri-food, agri-business sector, and value chains) farm sector and livestock sector.
- 7.9 **Proposed Advisory Committee:** The Institute may have an Advisory Council or Committee comprising private and public sector experts from Agriculture, trade, value chains, and agri-business.
- 7.10 **Revamped API to become Policy Adjunct of the Ministry for data collection, data collation, evaluation and analysis and recommend policy interventions.**

8. Proposed Objectives

17. The proposed objectives of the proposed statutory body shall be:
- To conduct research into public policy issues including costing and pricing impacts on Pakistan's farmers with the aim of identifying policy solutions that enhance the ability of farmers to operate in a profitable and sustainable manner;
 - To foster debate on farm and livestock policy issues with all relevant stakeholders across the country;
 - To engage in such activities as may be identified as contributing to the agriculture sector in Pakistan, such as, agricultural trade, agri-business, value chains, international conventions and protocols, standards and grading, and food safety.
 - To promote the results of policy research to government and wider audience in Pakistan.
 - To act as a conduit of policy research between federation and provinces in order to increase coherence between various agriculture and trade policies.

9. Proposed Focus Areas for Revamping and Restructuring API

18. Agriculture, Mainstreaming Climate Change in Agriculture, Livestock, Farm to Institutions, Trade and WTO, Developing ICT based Analytical and Forecasting tools, Seed, Productivity Enhancement, Rural Development, AMIS, Grading and Standardization, Biosafety, and Monitoring and Evaluation Platform for Essential Commodities as well as FSNIS

Based on the review and stakeholders' meetings, revamped API is expected to deal with the following focus areas:

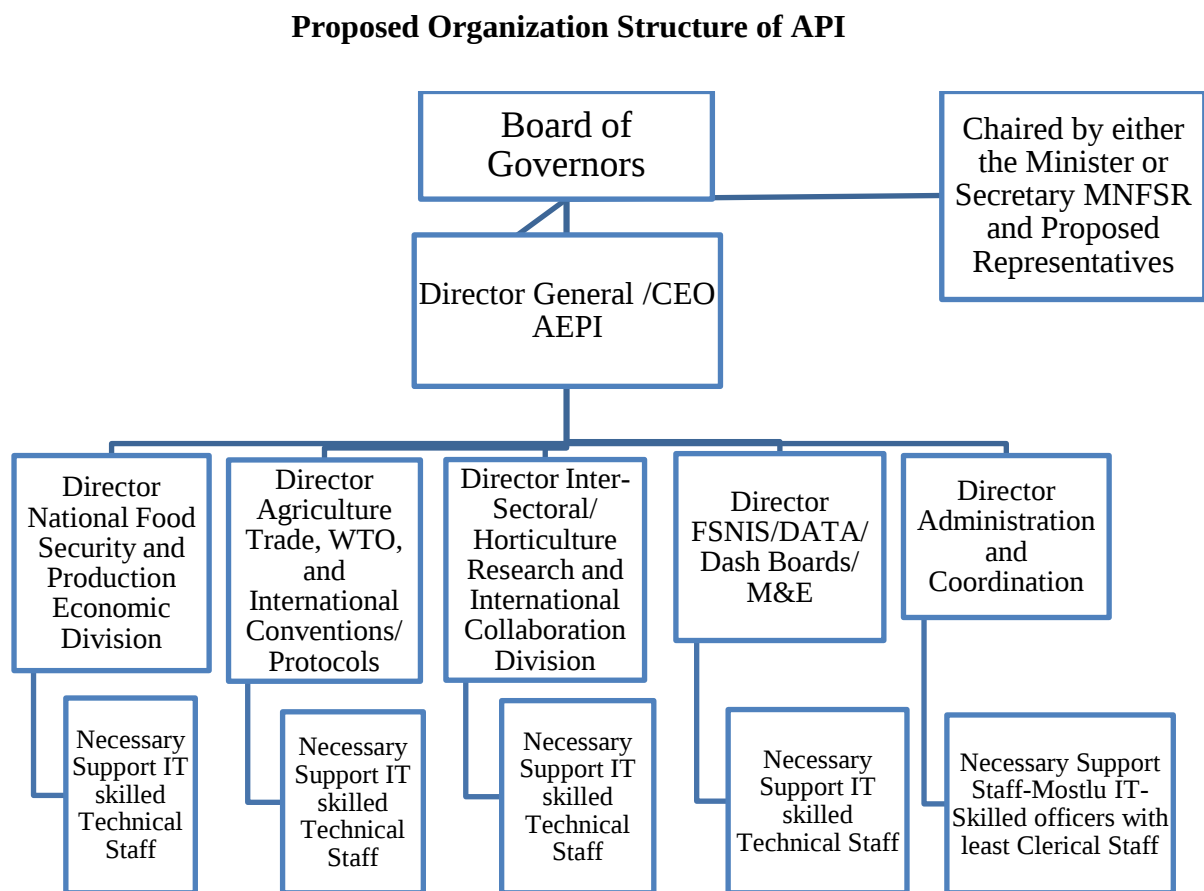
- All public policy areas relating to Agriculture and Livestock including major crops, horticulture, seed, productivity, fertilizers, and pesticides, farm clustering, contract farming, crop insurance;
- Food Policy, Food Planning and Monitoring in the country;
- Cost of production and Price rationalization of crops;
- Policy for modernizing agriculture produce markets, development of value chains and promotion of agri-business;
- Climate change impact assessment on agriculture and policy for climate resilient agriculture;
- Policy for Food Fortification and Nutrition Sensitive Agriculture;
- WTO/TRIPS as well as bilateral Agriculture trade related issues and policy response;
- Policy for Joint Ventures for agriculture inputs markets;
- Preparation of Food Security Policy;
- Developing and Forecasting Food Outlook and Food Security Reports on annual basis;
- Subsidies Policy;
- Develop data bank on agriculture statistics;
- Recommendations to the government on support/indicative price of major and minor commodities including; Wheat, Cotton, Rice, Sugarcane, Maize, Gram, Pulses, Oilseeds, Potatoes, Onions, Tomatoes; and
- Studies on intersectoral linkages of agriculture.

10. Areas of Reform

19. Gap analysis and need assessment along with detailed discussions with API staff, government officials, various stakeholders have led to identification of following areas for restructuring API, in order to strengthen the institutional capacity and revamp it as a modern policy guiding research institute.

10.1 Proposed Organizational Structure

The proposed organizational Structure is reflected below.



10.1.1 New divisions with clear mandate

20. The existing structure will be realigned to decision on proposed merger and new mandate that may ultimately be assigned to it. The proposed structure of APEI is reflected above. It is proposed to establish the following divisions, based on our discussions and gaps analysis, subject to review: i) National Food Security and Production Economics Division (NFSPED); ii) Agricultural Trade, WTO and International Conventions/Protocols Division (ATWIPD); iii) Inter-Sectoral/Horticulture Research and International Collaboration Division; iv) FSNIS/DATA/Dash

Boards and M&E Platform for Essential Commodities Division; and v) Administration and Coordination Division supported by three Deputy Directors of BPS-18 (DD Budget and Accounts, DD HR and DD Administration/Coordination. Food Security Division can also be assigned work related to environmental impact on agriculture and food while Inter-sectoral and International Collaboration Research Division can be assigned the work related nutrition sensitive agriculture.

10.1.2 New HR rules & regulation

21. HR rules and regulations will be reviewed and revised to provide career progression, incentive system and compensation. It is vital for the employees to have clearly defined and performance driven career paths so that they can improve their performance and stay motivated. Uncertainty has loomed large over APEI employees for years regarding the status of API with the Ministry which has been a demotivating factor for employees. Some employees waited for decades to get a single promotion. Such prospects of career growth can hamper likelihood of good human resource joining API and staying with it.

10.2 Institutional Capacity Building

10.2.1 Trainings

22. API staff needs state of the art training programs, both domestic and foreign, in order to fully take up the required tasks. There is a legitimate demand for trainings on international trade and WTO related matters. The primary areas for short-term to medium-term term training programs include trainings on World Trade Organization (WTO) regulations and arrangements, WTO Negotiations relating to Agriculture, Trade related Aspects of Intellectual Property Rights (TRIPS), Non-Agriculture Market Access (NAMA), international protocols on Seed including International Seed Federation's decisions, evidence based policy research, ICT based statistical analytical tools and modelling, database management system, Phytosanitary and biosafety including Cartagena Protocol measures for food safety and plant and animal health, Biosafety Protocols etc. Excellent training programs are available at WTO headquarter, Geneva related to WTO arrangements and TRIPS. Another weak area is the macro level analysis of major and minor crops, impact of climate change on Crop Calendar, Crop substitution and other related issues. Additional trainings can be identified through further discussions.

10.2.2 Staffing

23. Hiring freeze has been attributed as the primary factor for the decline in quality of API's output. It is important to develop Human Resource Plan aligned with the proposed mandate and corresponding organizational structure and the skill sets needed to rationalize staffing.

24. The Agriculture and Trade Division of API is using the model developed by Prof. John Mellor in 1980 for agricultural forecasting. The Institute needs capacity building in developing

advanced agriculture production and food outlook models, general and partial equilibrium modelling schemes, and analysis skills for precipitation, soil pH, temperature, value addition etc., assessment of flour industry, rice industry, cotton industry leather tanning industry, fertilizers and seed. In the recent years, rampant growth of super-stores has been observed in the urban and semi-urban centers. And they have become one of the primary sources of groceries for the citizenry with assurance of quality and economy. Since these stores are also contributing to the value addition of agricultural products in the form of canned foods, out-of-season fruits and multitude of dairy products, it is essential to guide policy directions of the government in an informed way and figure out if there are any shady practices going on to fleece costumers or exploit farmers. Another aspect would be how to enhance direct contact of farmers with such outlets so that role of middle-men can be effectively reduced. All these facets of modern agriculture require high-quality staff for API

10.2.3 Inter-Sectoral and International/Domestic Collaboration Research Division

25. The proposed statutory body may also identify domestic and international resources who can be inducted/hired as collaborators to enhance research quality for delivering on the mandate and visibility of the body.

10.2.4 Partnerships

26. Peer evaluation and partnerships are of paramount importance to produce and assure consistency of high-quality research output. API lacks any form of domestic and international peer evaluation and partnerships mechanisms. Such linkages will also help API technical team to gain insights into the international developments regarding agriculture research, relevant publications etc. India's agriculture policy department is collaborating with United States Department of Agriculture (USDA) on various levels which has really helped India to enhance the quality of its agriculture related research especially in terms of agricultural prediction modelling, food outlooks and crop analysis reports.

10.2.5 Linages with other Government Departments

27. The proposed statutory body will develop linkages with all relevant federal and provincial ministries/departments as well as stakeholders from the private sector and parliamentarians for policy formulation and decision making.

10.2.6 Database Management Systems and Monitoring and Evaluation

28. FSNIS/Database management systems/Dashboard should be established to transform API as central repository of data of national agricultural statistics and publications. Economics, statistics and market information system (ESMIS) like United States Department of Agriculture to manage data and publications as well as Monitoring and Evaluation Platform for Essential

Commodities (Turkey Experience) needs to be established for timely decision making by the Ministry.

10.2.7 Special Assignment Desks

29. The institute needs a special desk to carry out various seasonal and specific tasks such as intersectoral studies, e.g. evaluating different projects and impact assessments of various interventions related to tax, subsidies, infrastructure, logistics and transportation. API should be able to undertake research studies in various agricultural and allied sectors for the government in order to provide policy advice. Ultimately, it must evolve itself policy adjunct to the Ministry.

11. International Best Practices

30. After careful study of the similar research institutes and organizations in different countries, we have narrowed down our comparison to United States, Australia and India, in order to draw actionable features and viable directions for API. Some recommendations based on international best practices are presented below;

11.1. United States

31. United States Department of Agriculture (USDA) issues monthly outlook reports on domestic and foreign wheat production and is reported by season, variety and region. They use historical context of prices, stocks and supply in order to make their report. These reports also take into account export/import expectations and competitiveness of local produce in the international market by keeping an eye out for international markets developments. This report (maintained by Cornell University library) can serve as a benchmark for API wheat situation and outlook report for wheat and other crops. Another substantial output could be grain stock report issued by USDA. It is issued 4 times a year containing all stocks of wheat, durum, corn, sorghum, oats, barley, soybeans, canola, rapeseed, rye, sunflower, mustard seed, by States and U.S. and by on-farm and off-farm storage facilities. The data is obtained via off and on-farm stocks surveys. The on-farm survey is a probability survey of farm operators, the off-farm stocks survey enumerates the volume of grain in all known commercial grain storage facilities. USDA has following important divisions which can provide guidance to develop such divisions for API.

Other Reports by USDA

32. Following are the main reports issued by USDA which can be adopted by API.

- Weekly overview of shell eggs and egg products production and marketing.
- Monthly overview of cattle, lamb and sheep production and marketing.

Emulating USDA, these reports can cover specific occasions like Eids, Ramadan, Muharram trends of agriculture and livestock products. Periodic reports that provide an in-depth examination of marketing topics of interest i.e. of consumer preference and retail marketing.

11.2 Australia

33. Queensland Association for Agriculture and Food Alliance (QAAFI) makes summer and winter cropping forecasts produced by the experts using complex amalgamation of spatial and production modelling and climate forecasting. Such forecasts are prepared both at the national and provincial level. These reports are extremely helpful to the policy makers and the farmers to make informed economic decisions in the next cropping cycle.

34. Another interesting fact worth emulating is the issuance of regional cropping forecasts in different parts of Australia. This is specifically useful in the context of Pakistan i.e. if policy makers have data on cropping performance of various agroecological zones (at the very least) say in terms of moisture conditions, temperature, projected rainfall, they can take up various measures in a timely fashion to mitigate the negative impacts. Furthermore, preparation of national crop and food outlooks would be a commendable thing for API. API can produce outlook reports in advance either on its own or in collaboration with the provinces. This gives policy makers and government a leeway to prepare in advance keeping in view the future requirements.

11.3 India

35. Agriculture departments and research institutes in India are doing significant and commendable research works. The department of agriculture (DAC&FW), India has been organizing ‘Indian Agricultural Outlook Forum’ since 2017 in collaboration with United States Department of Agriculture (USDA). It mainly focused on the role of innovative technology, use of Big data in agriculture, strengthening of crop estimation systems and farm revenue and sustainability. The forum also deliberated on long term demand and supply projections of agricultural commodities for India prepared by NITI Aayog and Global Agriculture Outlook prepared by FAO. This kind of forum serves as a perfect emulation model for API which can be used to enhance the capacity and quality of its research work. On these lines, API should invite local as well as experts from various countries and international organizations to benefit from their expertise. That forum can overtime emerge as an important platform to discuss agricultural outlook and sharing of national and international experiences and best practices. This year, Indian forum will discuss Universal Basic Income (UBI) for farmers and some other key challenges like ways to manage excess production, price forecasting, artificial intelligence, input markets, insurance etc.

Regular Policy Briefs

36. IIM Ahmeadabad agro-economic policy briefs issues a bimonthly agro-economic policy briefs for the government and other stake holders. Their issues highlight the research undertaken

on the agricultural sectors so that the policy makers can utilize them accordingly. For instance, their current issue includes introduction, findings and recommendations on fodder shortage in India, how paddy fields in Kerala regaining normalcy in the aftermath of flood, horticulture crops in Assam, constraints and opportunities, Assessment of Dairying and its Potential to Improve the Socio-Economic Status of Milk Producers in Bihar. Such regular policy briefs are essential to keep all stakeholders abreast with the latest research findings.

Agro-Economic Alerts

37. IIM Agricultural Alerts is a perfect way to inform policy making especially in short term. For instance, in the context of electronic national agricultural market (eNAM) project, a research is done on barriers to eNAM in Lucknow's wholesale market. In this alert, they give the complete picture and loopholes of the system to government. Furthermore, they issued an alert on Onion Price Volatility in Bihar - Challenges and Needed Interventions, Problems of Direct Benefit Transfer in Fertilizers in Maharashtra etc. Such alerts are quite consequential for the policy makers to take remedial measures immediately at the grass root level. Recent skyrocketing of tomato price is a perfect example in Pakistan. API should be able to analyze and make recommendations on such situations.

Commodity Profiles

38. India (MAC&FW) regular issues commodity profiles on various crops mostly on monthly basis. e.g. wheat, rice, cotton, sugarcane crop. This is information compilation from various sources in order to inform decision makers on any significant changes for the month. Another interesting feature is issuance of monthly reports on horticulture i.e. tomato, onion, potato. In these reports, department issues updates on production, prices, current situation, international outlook and trade related scenarios. These are very simple reports but give valuable insights to the government. Such analyses are helpful in determining various price controls and future interventions. API needs to start such reports given the increasing economic significance of the horticulture. Developing linkages with various government departments which are collecting data on these aspects is very important. Otherwise, it can take lead on initiating the surveys and following analysis on these activities.

Indian Institute of economic growth

39. IEG is doing stimulating research work which can serve as a benchmark for API national agricultural yield, area and prices forecasting. In the next five years, IEG is working to develop crop forecasting schemes using Remote Sensing Data and econometric techniques. IEG is entrusted to build econometric model for crop forecasting. The agro-meteorological and space-based component models of the project are being handled by Meteorological department (IMD) and Indian Space Research Organization (ISRO). API should take lead in Pakistan in collaboration with SUPARCO and MET dept. Moreover, it's working on Trade and WTO related issues in

Indian Agriculture as the challenges and opportunities posed by the WTO need to be assessed continuously, taking into account the strengths and weaknesses of the country. Sector and commodity specific studies to analyze opportunities and potential threats are being pursued in the unit as well.

Next Steps

We propose to seek technical and expert views of the Honourable Members of the Technical Committee as well as API and the Ministry of National Food Security and Research on Items 7 to 11 (Paragraph 16-39) of this Concept Note before we finalize the note and share it with the potential donors.