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PACE Policy Paper: Creating Fiscal Space for Enhancing Public Investment in Sindh Agriculture Sector

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Creating Fiscal Space for Enhancing Public Investment in Sindh  
Agriculture Sector: A Qualitative Study of Provincial Spending in  
Pakistan

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## Table of Contents

1	INTRODUCTION .....	3
2	PROVINCIAL CONTEXT .....	4
3	BUDGET INTERMEDIATION, RESOURCE AVAILABILITY AND ALLOCATION.....	8
3.1	Budget Intermediation .....	8
3.2	Resource Availability in Sindh.....	10
3.3	Recurring Expenditure in Sindh .....	11
3.4	Development Expenditure in Sindh.....	12
4	SUBSIDIES IN SINDH.....	14
4.1	Subsidies in Agriculture and Irrigation Sector .....	14
4.2	Implicit Subsidy in Irrigation Water.....	15
4.3	Wheat Procurement Subsidy .....	19
5	PROVINCIAL TAXES ON AGRICULTURE IN SINDH .....	22
6	FISCAL SPACE FOR AGRICULTURE AND IRRIGATION: KEY RECOMMENDATIONS.....	23
6.1	Wheat Procurement: .....	24
6.2	Irrigation: .....	26
6.3	Effective Targeting of Subsidies: .....	26
7	CONCLUSION: .....	27

## 1 Introduction

Agriculture and Irrigation sectors except for national food security and federal agriculture research have been devolved to the provinces following Eighteenth Constitutional Amendment in 2010. The Government of Sindh has approved and notified its first ever Agriculture and Livestock Policy in April 2018. To achieve objectives outlined in the Policy, it is imperative to increase investment in agriculture sector substantially to unleash the full potential of agriculture both for inclusive growth and economic development in the province. Moving towards this desirable goal of enhancing investment in agriculture and irrigation, it is vital to understand current resource sharing between the federation and federating units in Pakistan, gross resources available to the province in a financial year, dynamics of public expenditure allocations at sub-national level, and interplay of diverse interests during the budget process (Fan, Yu, and Saurkar 2008; Mogues 2015).

Similarly, budget institutions,<sup>1</sup> electoral system, and political institutions, apart from population composition, play their role in influencing public spending allocations during budget process and imposing constraints. The evidence suggests that budget process and institutions have substantial influence on budget allocation across different sub-regions and sectors. Despite huge transfer of resources to the provinces following the 7<sup>th</sup> National Finance Commission Award of 2010, the provinces have been underscoring increasing tight fiscal space. Given these pronounced binding constraint and rigid allocation of resources, it is challenging to enhance allocations to achieve desirable policy objectives. In these environments, insight regarding political and budget institutions will help in structural analysis of the budget, rationalization of existing public spending across sectors, and exploring the possibility of fiscal space through resource allocation restructuring.

This paper reviews the interaction of political and administrative institutions, allocation of available resources as well as public spending trends and identify the fiscal space that could possibly be made available for enhanced allocation to agriculture, livestock, fisheries and irrigation in Sindh. Section 2 provides the structure of province of Sindh's economy and various challenges confronting it. Section 3 reviews resources available, inter-mediation of budget institutions for resource allocation, public investment and structure of spending in Sindh; both recurrent and development. Section 4 highlights the subsidies in agriculture, particularly the subsidies on fertiliser, wheat farmers and millers, and irrigation. Section 5 looks at the taxes related to agricultural land and revenues collected. Section 6 estimates the fiscal space within existing resources that can be made available for enhanced investment in agriculture and irrigation.

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<sup>1</sup> Budget institutions are the rules, procedures, and practices by which the budget's drafting, approval, and implementation takes place (Alesina and Perotti 1996).

## 2 Provincial Context

Sindh is the second largest province of Pakistan with a population of 47.9 million of which 48 percent lives in rural areas and accounts for more than a quarter of Pakistan's GDP. Agriculture is crucial to household welfare in Sindh, accounting for about 24% and 70% of provincial GDP and employment respectively. Of the total 3.1 million rural households (HH) in Sindh, 44.2 percent are only-farm HHs (in terms of where they are employed), 29.5 percent are non-farm HHs, and 26.3 percent are mixed activity HHs. Most households are heavily dependent on agriculture, especially the poor who derive 56 percent of their income from agriculture.<sup>2</sup>

Sindh encompasses 18 percent (140,914 km<sup>2</sup>) of Pakistan's land area and is situated in a subtropical region with three climatic sub-regions: (a) Siro, the upper region, centred on Jacobabad; (b) Wicholo, the middle region in the vicinity of Hyderabad; and (c) Lar, the lower region around Karachi. Most land in Sindh is arid. Sindh's arid zones cover 62% of the province.<sup>3</sup> Average annual rainfall in the Province is below 200mm, and relatively high average annual evapotranspiration throughout much of the year.

The farm land distribution is highly skewed towards large land holdings. While 13.6 percent (1.113 million) of Pakistan's farms are located in Sindh, average farm size in Sindh is small (9 acres), 83% of farms are less than 12.5 acres accounting for 15% of farm land. Only 8% of farms is larger than 12.5 acres but account for 44% of farm land. 80 per cent of the total farm area is operated by owners and 20 percent by tenants. Most of the tenant operated area (71 percent) is cultivated on the terms of share cropping (7.31 million acres) followed by 26 per cent with leases (2.71 million acres).<sup>4</sup>

The economy is quite diverse and includes significant share of services and industry. Agriculture accounts for 16 percent of the national cropped area, 14 percent of national irrigated area, and contributes 23 percent to national agriculture and 24 percent to provincial GDP. Wheat, cotton, rice and sugarcane comprise two-thirds of the total cropped area. Sindh's share in total Pakistan area of rice is 36%, cotton 34%, sugarcane 29%, and wheat 15%. Sindh's arid and semi-arid climatic conditions are conducive to grow fruits, vegetables, condiments, and flowers.<sup>5</sup> Many of Sindh's higher-value crops are produced in well-defined clusters – e.g. vegetables and milk are in

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<sup>2</sup> Household Income and Expenditure Survey (HIES) 2015-16, Pakistan Bureau of Statistics.

<sup>3</sup> It is around 88,000 km<sup>2</sup> and are mainly found in four areas—the Thar region (Tharparkar and Umerkot districts) and Nara region (Sanghar, Khairpur, Ghotki and Sukkur districts) in the east, and Katchho and Kohistan regions (Dadu and Thatta districts) in the west.

<sup>4</sup> Agriculture Census, 2010 and Sindh Development Statistics 2017

<sup>5</sup> Sindh contributes more than 80% of the national production of red chilis, 70% of bananas, 40% of dates, 40% of onions, and 30% of mangos.

the peri-urban areas of Karachi and Hyderabad, dates in Khairpur, red chilies in Kunri, bananas in central Sindh, sheep, goats and cows in the settled as well as arid areas of Umerkot and Thar.

Agricultural growth in Sindh has slowed down from over 4 percent per year between 1970-2000 to below 3 percent during 2001-2015. Earlier growth was largely driven by yield growth, especially of rice and wheat, which together with cotton and sugarcane continue to account for two-thirds of total cropped area. The post-2000 slow-down in agricultural growth is mainly due to stagnant yields (indicative of little innovation) exacerbated by inefficient delivery of water for irrigation. Research & extension efforts as well as price and market policies have traditionally focused on major crops which are of relatively low value and require large amounts of water, at the expense of water efficient high-value crops with rapidly rising consumer demand. Poorly functioning agricultural markets with significant government intervention, and a pattern of public spending on agriculture characterized by inefficiently targeted subsidies discourages a move towards higher value and climate resilient agriculture.

Sindh's agricultural innovation system is underperforming and is to a large extent responsible for slow yield growth and high unit production costs. At less than 0.2% of agricultural GDP, Sindh's public expenditures on agricultural research are very low compared to e.g. China (0.6% of AgGDP) or even Bangladesh (0.38% of AgGDP)<sup>6</sup>. And unlike Sindh, China also have a significant private research industry. The majority of agricultural research expenditure funded by the Government of Sindh (GoSindh) is for major crops rather than high-value crops and livestock products. There is also very little attention to post-harvest management including value-addition, quality (standards and grading), food safety and nutrition. Improving the competitiveness of Sindh's agriculture sector, including through restoring on-farm productivity growth (and hence lower cost per unit of output) and improving efficiency and quality along the post-harvest value chain would require a substantial overhaul of the agricultural innovation system.

Sindh agriculture markets continues to function under the Agricultural Produce Market Act of 1939, though the Provincial Assembly passed the new legislation in 2010.<sup>7</sup> Agricultural markets (*mandis*) are run by market committees which are often involved in collusive marketing practices. They typically invest little in marketing infrastructure and grading and quality control are generally absent. Lack of accountability in marketing and poor information flows act as disincentives to producers to grow high-value crops.

Livestock accounts for more than 50% of agricultural GDP in Sindh but faces many constraints, including nutrient deficiencies in animal feed, poor animal health and husbandry practices, inadequate artificial insemination (AI), poor veterinary infrastructure and limited other veterinary

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<sup>6</sup> Agriculture Science and Technology Indicators (ASTI), 2019

<sup>7</sup> The Act of 2010 is inoperative because of restraining injunction from the Sindh High Court due to legal voids.

services which tend to focus more on curative care at the expense of preventing and controlling diseases. Furthermore, insufficient development of the genetic potential of indigenous livestock breeds keeps productivity low. Export of meat to high-end markets is constrained by lack of tagging and traceability and non-compliance with food safety standards.

Irrigation plays a pivotal role in agriculture in Sindh. It covers larger part of most downstream reaches of Indus River with reasonable flow of 80 bcm<sup>8</sup> annually: 60.17 billion m<sup>3</sup> (41.88 billion m<sup>3</sup> in Kharif; 18.29 billion m<sup>3</sup> during Rabi) under the Water Apportionment Accord of 1991. Groundwater resources in Sindh Province are estimated to range between 16 and 20 billion m<sup>3</sup>, with an estimated safe yield of between 5.5 and 10 billion m<sup>3</sup>. The Lower Indus Basin Irrigation System (IBIS) commands a total of 5.36 million ha within Sindh, and comprises of three barrages (Guddu Barrage, Sukkur Barrage and Kotri Barrage), 14 main canal systems and over 21,000 km of canals in the Province. Drainage infrastructure comprise around 6,000 km of surface drains; 561 km of interceptor drains and around 5,000 tube wells<sup>9</sup>. Due to low average rainfall and predominantly saline ground water, agriculture in Sindh primarily depends on surface water canal irrigation. While surface water accounts for about 85% of irrigation supplies, estimates suggest that present groundwater pumping is around 5 billion m<sup>3</sup> and that the number of existing tube wells is near 100,000, most of them installed by the private sector.<sup>10</sup>

The irrigation sector is beset with considerable challenges that limit its performance and preclude high water productivity. While predominantly designed to serve irrigated agriculture, water resources in Sindh have multiple, and rapidly rising competing demands including energy generation, supplies water for both human and industrial consumption, and environmental health of the Indus delta. The GoSindh has invested in modernization of the irrigation sector over the last few decades though, much of the irrigation system and assets remain outdated, and considerable investment is required to deliver high-quality irrigation services with greater reliability, flexibility, and equity. In addition, water from the Indus river carries a high sediment load and relatively wide, shallow and mostly unlined canals designed for a relatively narrow range of discharge, which in many cases have been increased to meet higher water demand and cropping intensities. This has led to deteriorated irrigation canals and other infrastructure causing water losses, safety risks, and difficulties in effectively managing the system.<sup>11</sup>

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<sup>8</sup> Billion Cubic Meter

<sup>9</sup> Azad A., M. A. Rasheed and Y. Memon, 2003, *Sindh Water Resources Management – Issues and Options*, Occasional Paper Series No. 15. FAO Investment Centre

<sup>10</sup> Planning and Development Department, 2016, *The Irrigation Management Strategy of Irrigated Agriculture of Sindh Province*, 4<sup>th</sup> Draft. Project Coordination and Monitoring Unit. Sindh Water Sector Improvement Project.

<sup>11</sup> Toru Konishi, *Sindh Province: Program For Improving Water Resources Management And Increasing Climate Resiliency*, An Unpublished Paper, 2018.

The water productivity in Sindh is low which is attributed to prevailing cropping pattern: (i) sugarcane covers 24.1 percent of the cropped irrigated<sup>12</sup> area having a water productivity of PKR 0.6 per cubic meter;<sup>13</sup> and (ii) rice covers another 24 percent of the irrigated area yielding PKR 2.5 per cubic meter. These high water consumptive crops are common in the upstream canals of Indus leaving downstream areas under served. Other irrigation-related issues include: (a) lack of effective system monitoring and enforcement of agreed flows; (b) widespread overuse of irrigation and low irrigation efficiency, especially near the canal heads; (c) significant inequity in water distribution between head and tail-end farmers; (d) excess water flowing to sinks, including saline groundwater which is unavailable for downstream re-use; and (e) low collection rates of the irrigation service fees (*abiana*) which only covers a small share of the overall costs to maintain, repair and operate the system.

Salinization, water logging and soil degradation are increasingly serious problems. Over-application of irrigation water and lack of drainage facilities is causing water-logging and salinization. The combined effects of water logging and salinization reduce crop production by 40%-60% on about 30% of irrigated lands in Sindh that are saline.<sup>14</sup> The salinity problem has increased with the expansion of irrigated areas and is aggravated by a lack of functional drainage infrastructure, low irrigation efficiency and extraction of deep groundwater. Controlling salinity and water logging is critical to increase crop yields and production as well as water productivity.

Besides the issue of water availability, Sindh is currently facing an increasingly severe water quality crisis. Discharge of untreated sewage and industrial water into irrigation canals, wetlands and natural waterways is common in Sindh. Since a large share of Sindh's population depends on surface water (i.e. irrigation canals) for domestic water use, the low quality of available water is negatively impacting public health. Untreated sewage continues to flow into water meant for irrigation at 750 points across the province.<sup>15</sup> A recent analysis of water samples conducted as part of a Judicial Commission investigation found that of the 460 water samples taken, 354 (77%) were unsafe.<sup>16</sup>

Climate change poses a threat to water and food security. A large share of Indus River flows is fed by the glaciers of the western Himalayas. While in the short term climate change is likely to

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<sup>12</sup> Source of information for this paragraph is the "Irrigation Management Strategy for Sindh Province" (2015) prepared under the WSIP project.

<sup>13</sup> World Bank, 2018. Pakistan: Pathways to Water Security. Pakistan Water Security Diagnostic (P165845).

<sup>14</sup> IUCN, 2007, *Sindh Strategy for Sustainable Development*. International Union for the Conservation of Nature.

<sup>15</sup> Daily Dawn, March 19, 2018, <https://www.dawn.com/news/1395980>

<sup>16</sup> Daily Dawn, July 15, 2017, <https://www.dawn.com/news/1345508>

increase river flows as glaciers retreat and additional stored water is released, in the longer term the emptying of glacial reservoirs may result in a 30%-40% reduction in available water besides altering the timing of river flows. Climate projections indicate that potential impacts from climate change may include the following: (a) reduced productivity of crops and livestock due to heat stress; (b) increased irrigation requirements due to higher levels of evapotranspiration; (c) changed rainfall patterns (including more erratic events), which will particularly impact rainfed areas; (d) increased frequency and intensity of extreme climate events (floods, droughts); and (e) increased saltwater intrusion, affecting coastal agriculture, forestry and biodiversity. Sindh is predicted to be the most vulnerable ‘hotspot’ in Pakistan in terms of the impact of temperature and precipitation changes on living standards, with the four most vulnerable districts of Pakistan all lying in Sindh – Hyderabad, Mirpur Khas, Sukkur, and Larkana.

In this backdrop, recently notified Sindh Agriculture Policy of 2018 aims at: (i) raising overall growth of the sector to 4-5 percent; (ii) reducing rural poverty to half of current levels along with malnutrition; (iii) making efficient use of natural resources and mitigating environmental impact while preserving agro-ecological base; (iv) enhancing climate change resilience and adaptability; (v) diversifying to high value agriculture; and (vi) focusing on effective communication and monitoring and evaluation. More specifically, it purposes to (a) liberalize and deregulate the sector and work with the banks and the private sector to enhance investments and finance into agriculture.; (b) change the level and composition of public expenditure away from inefficient and ineffective programs; (c) launch agriculture and livestock insurance programs to reduce income variability for farmers; and (d) facilitate and promote technological improvement along the full value chain, particularly for products such as fresh and processed fruits, vegetables and livestock products for which demand is increasing. The GoSindh is also in the process of formulating a Water Policy.

Accomplishing this ambitious agenda and managing critical vulnerabilities need not only enhanced investment but also policy reforms in agriculture and irrigation sectors. These include: institutional strengthening and legal reforms in both sectors, and establishment of effective mechanisms to implement Integrated Water Resources Management (IWRM). Additionally, critical investments in climate smart agriculture, irrigation and drainage infrastructure are required to ensure more reliable water delivery to stakeholders and as capacity building.

### **3 Budget Intermediation, Resource Availability and Allocation**

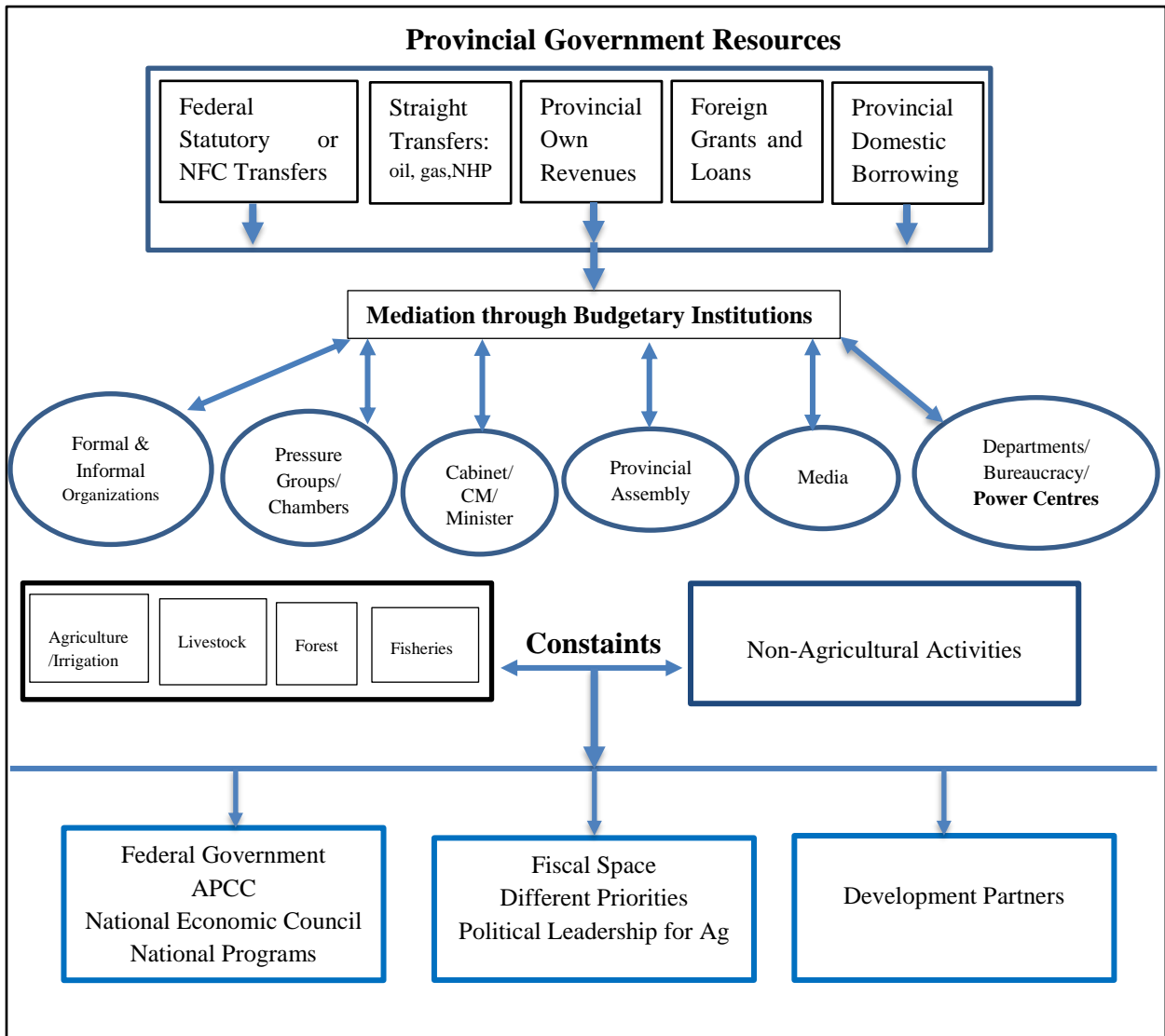
#### **3.1 Budget Intermediation**

The rationale for public investment stems from perceived economic inefficiencies because of market failures and inequality in distribution of goods and services across regions. Mogues, Fan, and Benin (2015) have provided theoretical foundation of public expenditure, and its principles and effects on production and distribution, particularly in the context of the agricultural sector. The pattern of public investment mirrors the level of commitment of the respective government to



agriculture. However, resource allocations to various sectors made by the provincial government depends primarily on the revenues at its disposal. The process of spending these funds is mediated by the budgetary institutions which oversee the public finance process, key political and influential actors, their preferences and interactions, and sometimes it is driven by informal power centres. This, at times, compromises flow of resources to high priority areas. Post -18<sup>th</sup> Constitutional Amendment, the influence of the federal government over resource allocation and public expenditures at the sub-national level is minimal (see **Figure 1**).

**Figure 1. Budget and Political Institutions Mediating For Resource Allocations at Provincial Level**



*Author's description*

### 3.2 Resource Availability in Sindh

Federal Transfers out of the divisible pool<sup>17</sup> has substantially increased since 7<sup>th</sup> National Finance Commission (NFC) Award<sup>18</sup> operational since 2010/2011. The share of the provinces increased from 46.5 percent in 2009/2010 to 57.5 percent of the pool. While the NFC transfers to Sindh increased by 258 percent during 2009/2010 to 2018/19, the provincial own receipts increased by 445 percent during the same period because of vibrant General Sales Tax (GST) on Services. The total revenue resources available to Sindh Province increased at annual compound growth rate (ACGR) of 12 percent rising from PKR 256 billion in 2009/2010 to PKR 939.4 billion in 2017/2018 and then, declining to PKR 818.5 billion in 2018/2019. The Provincial Tax Receipts increased at an ACGR of 24 percent while GST on Services alone grew at an ACGR of 46 percent during the same period. Nevertheless, the provincial non-tax receipts declined at an ACGR of negative 4 percent. The total available resource in real terms (2005/2006 prices) increased at an ACGR of 9 percent from PKR 166.3 billion to PKR 360.3 billion in 2017/2018 and then, declined to PKR 292.2 billion. Gross per capita revenue receipts increased from PKR 6,806 in 2009/2010 to PKR 17,205 in 2018/2019 (see Table 1, Figure 2).

Table 1. Total Resource Available to the Province of Sindh: 2009-10 to 2017-19  
(PKR in Billion)

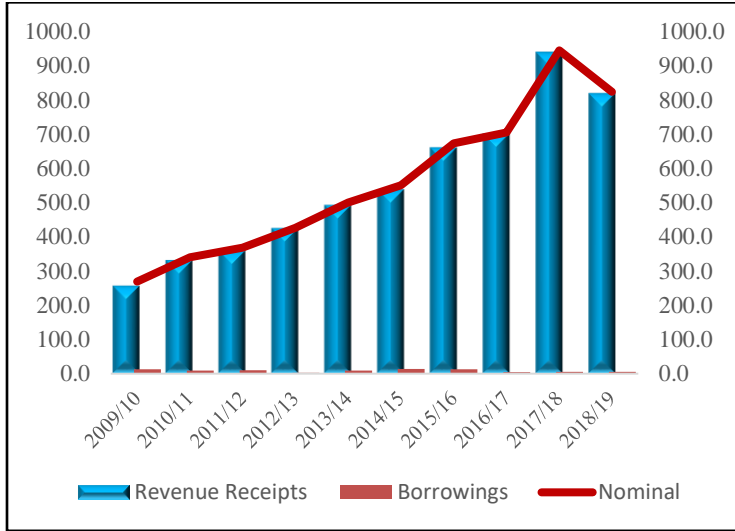
Year	Gross Revenue Receipts (NFC+ Prov. Receipts & Straight Transfers)	Foreign Borrowings	Total Resource (Nominal)	Total Resource (adjusted at 2005/06 Prices)	Per Capita Federal Transfers incl. Straight Transfers PKR	Federal Transfers including Straight Transfers As % of Total Resource	Provincial Revenue Receipts As % of Total Resource	Foreign Borrowings As % of Total Resource
2009/10	256.2	13.0	269.2	166.3	5571.9	81.9	13.3	4.8
2010/11	331.0	9.5	340.5	176.0	6830.6	81.3	15.9	2.8
2011/12	359.1	9.7	368.8	180.4	6926.9	77.9	19.4	2.6
2012/13	424.6	2.2	426.8	194.9	8037.2	80.0	19.5	0.5
2017/18	939.3	5.8	941.6	360.3	15613.6	79.1	20.3	0.6
2018/19	818.5	5.4	823.9	292.2	13015.5	75.7	23.7	0.7
<b>Total FY11-19</b>	<b>4444.0</b>	<b>57.0</b>	<b>4511.0</b>	<b>1897.0</b>				
<b>ACGR %</b>	<b>12</b>	<b>- 8</b>	<b>12</b>	<b>9</b>				

Source: Sindh Budget Analysis (Government of Sindh), Financial Statements (Auditor General of Pakistan, and NFC Biannual Reports (Ministry of Finance)

<sup>17</sup> Divisible Pool is described vide Article 160 read with Article 3 of the President Order No.5 of 2010 as net proceeds of taxes distributed between the Federation and the Provinces, namely:- (i) taxes on income, including corporation tax, wealth tax, capital value tax, but not including taxes on income consisting of remuneration paid out of the Federal Consolidated Fund; (ii) taxes on the sales and purchases of goods imported, exported, produced, manufactured or consumed; (iii) export duties on cotton; (iv) custom duties; and (v) federal excise duties excluding duty on gas well head.

<sup>18</sup>The National Finance Commission is constituted every five years under Article 160 of the Constitution, comprising Federal Finance Minister, Provincial Finance Ministers, and independent Members, one from each Province for vertical and horizontal distribution of the Divisible Pool net of Collection Charges.

**Figure 2. Total Available Resource to Sindh**



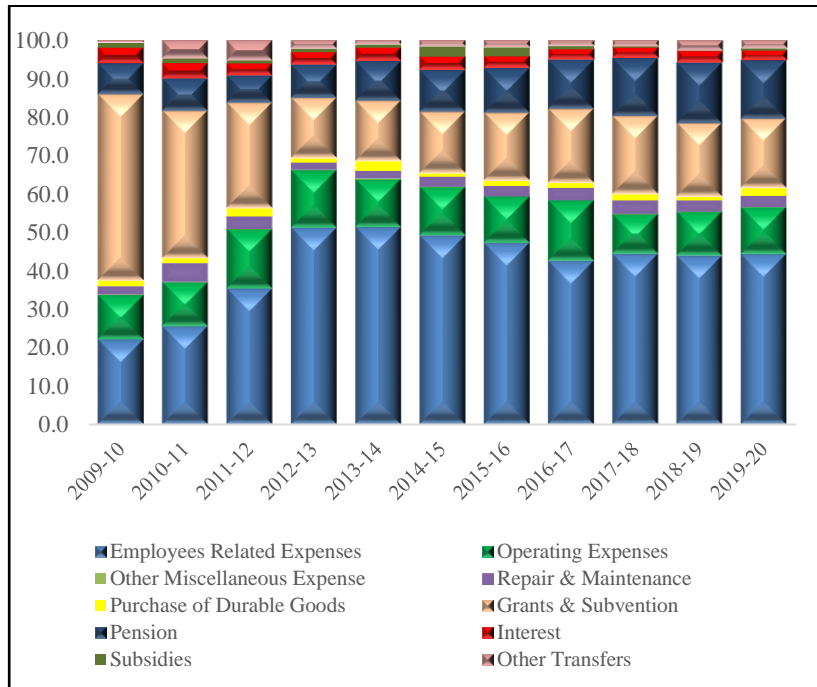
Source: Budget Analysis and Budget Books of Sindh

The Provincial revenue receipts in Sindh witnessed marked improvement. As a result, the share of provincial own revenues increased from 13.3 percent in 2009/2010 to 23.7 percent in 2018/2019 in total resource of Sindh. This substantial enhancement is primarily for two reasons: (i) provincialization of General Sales Tax (Services) collection under the 7<sup>th</sup> NFC Award and expansion in its coverage; and (ii) revision of tax rates of other taxes.

### 3.3 Recurring Expenditure in Sindh

The recurrent expenditure in Sindh has risen sharply from PKR 225 billion in 2009/2010 to PKR 870 billion estimated for 2019/2020, an increase of 287 percent. The subsidies peaked in 2014/2015 to 2.6 percent of the current expenditure with huge liabilities outstanding on account of wheat procurement. Subsidies are also provided through development budget. Pay and Pension expenditure has increased from 30 percent in 2009/2010 (last year of 6<sup>th</sup> NFC Award) to 59 percent of total current expenditure in 2019/2020.

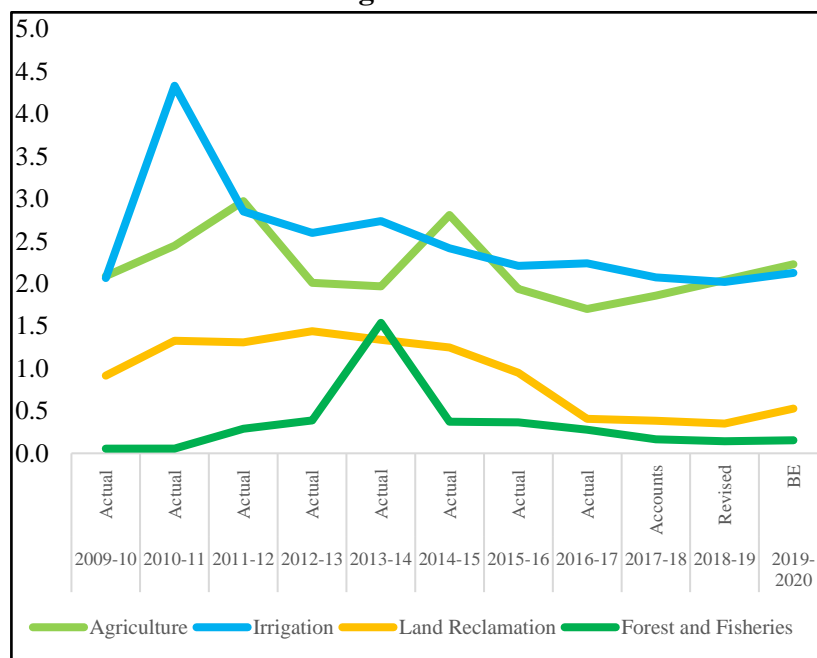
**Figure 3. Recurrent Expenditure by Object**



Source: Annual Budget Statements and Budget Analysis of Government of Sindh

The share of Agriculture sector as percentage of total recurrent expenditure peaked to 3 percent in 2011/2012 but then fluctuated between 1.7 to 2.0 percent till 2018/2019 except 2014/2015. Likewise, spending on Irrigation peaked to 4.3 of total recurrent expenditure and then declined to 2.0 percent in 2018/2019 (see **Figure 4**). The primary reason for surge in irrigation spending was the super flood in 2010 followed by heavy rains in 2011. Forest and Fisheries seems to be a low priority in Sindh despite huge potential for inland and marine fisheries and thick forests.

**Figure 4. Recurrent Expenditure in Agriculture & Irrigation**



Source: Annual Budget Statements and Budget Analysis of Sindh

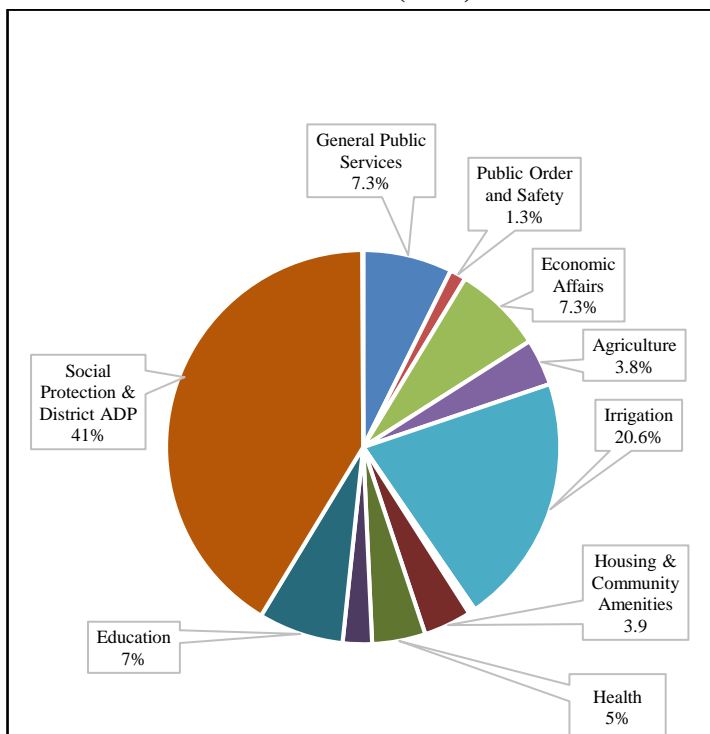
### 3.4 Development Expenditure in Sindh

Public development expenditures in Sindh have risen steeply, in nominal terms, following the 7<sup>th</sup> National Finance Commission Award. The total nominal development spending in Sindh between 1970/1971 to 2018/2019 increased at an annual compound growth rate of 13 percent while it rose at an ACGR of 3.4 percent in real terms (inflation adjusted 2005/06 prices). The public development spending grew at an ACGR of 7.9 percent during 2010/2011 to 2018/2019 while it rose at an ACGR of 45.4 during 2000/2001 to 2009/2010 (see **Table 2**). In absolute amount, the public investment increased from PKR 67 billion in 2009/2010 to PKR 284 billion in 2019/2020 (Estimated). **Figure 5** shows sectoral distribution of Sindh's Development Expenditure for 2019/2020.

Nominal development spending on agriculture and irrigation sector increased at an ACGR of 14.5 percent (8.3 percent in real terms) during 2010/2011 to 2018/2019 as opposed to 31.3 percent increase during pre-7<sup>th</sup> NFC Award (2000/01-2009/10). Pre-7<sup>th</sup> Award high development spending includes federal programs such as Khushal Pakistan Program and DERA to mitigate the affects of drought during 1999-2001. Post-7<sup>th</sup> NFC Award high spending on irrigation includes rehabilitation of irrigation infrastructure after 2010 super flood. Stand alone, public investment in the farm sub-sector increase at an ACGR of 3.4 percent during 2011-2019. Its share in the total development

spending has declined from 7.3 percent in 2010-2011 to 3.5 percent in 2019/2020 of the provincial Annual Development Program.

**Figure 5. Sectoral Allocation for Development Budget 2019/2020 (B.E.)**



Source: Sindh Annual Budget Statement and Annual Development Plan for 2019/2020

A review of overall levels of public investment in Sindh suggests three major weaknesses. Firstly, the development expenditure has declined from 41 percent of total spending of Sindh in 2010/2011 to 30 percent in 2018/2019 because of substantial increase in recurrent expenditure rising from 59 percent to 70 percent during the same period. Secondly, actual development expenditures are generally well below budget allocation. For example, original ADP size for 2018/19 was pitched at PKR 344 billion but actual expenditures were only PKR172 billion, around 50 percent of the original allocation. This is, in part, due to slow and late release of funds, partly due to financial constraints and procurement issues, and lack of capacity within the departments

Thirdly, much of annual allocations is assigned to ongoing projects, which have already been approved. It leaves little space for changing priorities or taking on new programs and projects.

**Table 2. Inter-Decadal Nominal and Real Recurrent and Development Spending on Agriculture and Irrigation Sector in Sindh (%) 1970/71 to 2017/2019 (PKR in Million, 2005/06 = 100)**

Item	1971-1980	1981-1990	1991-2000	2001-2010	2011-2019	1971-2019
ACGR of Nominal Revenue Expenditure	23	16	12	8	14.8	15.9
ACGR of Nominal Development Expenditure	20	-12	4	45.6	7.9	12.4
ACGR of Real Revenue Expenditure	11	9	3	-0.2	8.6	6.6
ACGR of Real Development Expenditure	8	-17	-5	34.6	2.1	3.4
ACGR of Nominal Revenue Expenditure on Agriculture & Irrigation	32	10	7	14.4	12.3	15.9
ACGR of Nominal Dev. Expenditure on Agriculture & Irrigation	41	21	-10.0	31.3	14.5	14.6
ACGR of Real Revenue Expenditure on Agriculture and Irrigation	5	3	-1	0.3	6.2	3.9
ACGR of Real Dev. Expenditure on Agriculture and Irrigation	6	14	-18	21.4	8.3	7.0

Source: Budget Analysis, Appropriation of Accounts, Civil Accounts and Budgets of the Province, 1972-2020

## 4 Subsidies in Sindh

### 4.1 Subsidies in Agriculture and Irrigation Sector

Farm subsidies are of two types: direct and indirect. Direct support includes commodity specific price support programs, direct payments to producers that support farm income, not tied to the production of a specific commodity, and supply control programs aimed at controlling crop production. Major categories of input subsidies include but not limited to those for fertilizer, irrigation, seed, electricity and fuel. Indirect support includes programs that impact terms of trade but not necessarily directly linked to producers. Credit subsidies may be a form of input subsidy if provided for agriculture production, but they also include credit to support marketing activities by both producers and downstream processors and traders. Transportation and storage subsidies refer to assistance provided to the agricultural industry to manage and subsidize the shipment and handling of commodities as they enter the marketing channel.

The Government of Sindh initially extended explicit subsidies for seed, plant protection, tubewells, and state trading of wheat, and sugar. However, over the years, these subsidies have been discontinued except wheat procurement. Very recently, the provincial government started sharing subsidy with the Federal Government on wheat and sugar export. There is implicit subsidy on water for irrigation. The gross subsidies in agriculture Sector in Sindh are estimated to be PKR58.5 billion annually out of which PKR19.9 billion (34 percent) are provincial subsidies (see **Table 3**).

Table 3. Gross Subsidies in Agriculture in Sindh (2018-19)

	Type of Subsidy	Subsidy in PKR Billion	Subsidy in \$ Million
Fertilizer Production Subsidy Implicit in Gas Price <sup>19</sup>	Federal	21.5	153.6
GST Subsidy on Fertilizer <sup>20</sup>	Federal/Provincial	6.6	47.1
Subsidy on Imported Fertilizer <sup>21</sup>	Federal	5.6	40.0
Subsidy for Tubewells Electricity <sup>22</sup>	Federal	4.6	33.1
Subsidy on Wheat Export	Federal	0.3	2.2
Abiana Subsidy	Provincial	4.3	30.0
Subsidy for Wheat Procurement	Provincial	10.6	75.7
Subsidy on Wheat Export @\$60/MT	Provincial	0.7	5.0
Subsidy on Sugar Export	Provincial	3.0	21.4
Other Subsidies in Agriculture & Irrigation	Provincial	1.4	10.0
<b>Total Subsidy</b>		<b>58.6</b>	<b>418.1</b>
Provincial Subsidies		20.0	140.1

Source: NFDC, Ministry of Finance Department, Food Department and Irrigation Department

<sup>19</sup> Total Gas Subsidy multiplied by 26%, share of fertilizer consumption in Sindh = (PKR82.2 billion x 26%)

<sup>20</sup> Cash subsidy of PKR400 per bag in 2016-17 has been replaced with implicit tax subsidy with reduction in GST Rate to PKR100 per bag

<sup>21</sup> Total Subsidy multiplied by 26% (share of fertilizer consumed in Sindh)

<sup>22</sup> It is 17 percent of total subsidy for electric tubewells in Sindh (PKR27 x 17%)

## 4.2 Implicit Subsidy in Irrigation Water

The irrigation system in Sindh suffers from quadruple financial deficits. These deficits consist of (i) low and stagnant *Abiana* (water charges) rates; (ii) gap between *Abiana* assessed by the Sindh Irrigation Department (SID) or Sindh Irrigation and Drainage Authority (SIDA) and *Abiana* recovered; (iii) gap between *Abiana* recovered and Maintenance and Repair (M&R) expenditure and (iv) gap between M&R budget allocation and reasonable minimum M&R requirements. Water theft through lifting of river water in the *Katcha*<sup>23</sup> area, direct outlets<sup>24</sup> from the main canals that allow to draw maximum water in any given area at the cost of lower riparian growers and over-drawl of water by upstream users escape formal water charge.

### Low and Stagnant *Abiana* Rate

*Abiana* rates are low and remained constant for more than a decade. *Abiana* rates per acre in Sindh are crop based. These are: PKR 39.85 per acre for maize, pulses and fodder, 53.3 for wheat and oil seeds, 93.07 for cotton, 88.78 for rice and tobacco, 142.14 for vegetables, potato, and orchards and 187.87 for sugarcane. These rates were last revised in Rabi 1998-99 and have remained unchanged since then in nominal terms (see Annex-1). In real terms, these rates have declined to PKR 15.30, 20.40, 35.70, 34.0 and 54.50 per acre, respectively.<sup>25</sup>

### Low Recovery of *Abiana*

Not only the *Abiana* rates are very low, actual *Abiana* recovery rate is significantly lower as compared to assessment. It declined from 128 percent in 2001/02 to 25 percent in 2011/12 and 61.5 percent in 2017/18 (see **Figure 6**). Percentage of recovery seems high as the denominator (*Abiana* assessed) is quite low. Low *Abiana* recovery reflects (a) user dissatisfaction with the irrigation service delivery or non-payment; (b) lack of effort by the field staff; (c) lack of transparency and improper receipt books, (d) unauthorized recovery by the revenue staff; (e) political interference; and (f) absence of third party audit of assessment and collection.<sup>26</sup> In addition, huge past dues are outstanding against each Area Water Board.

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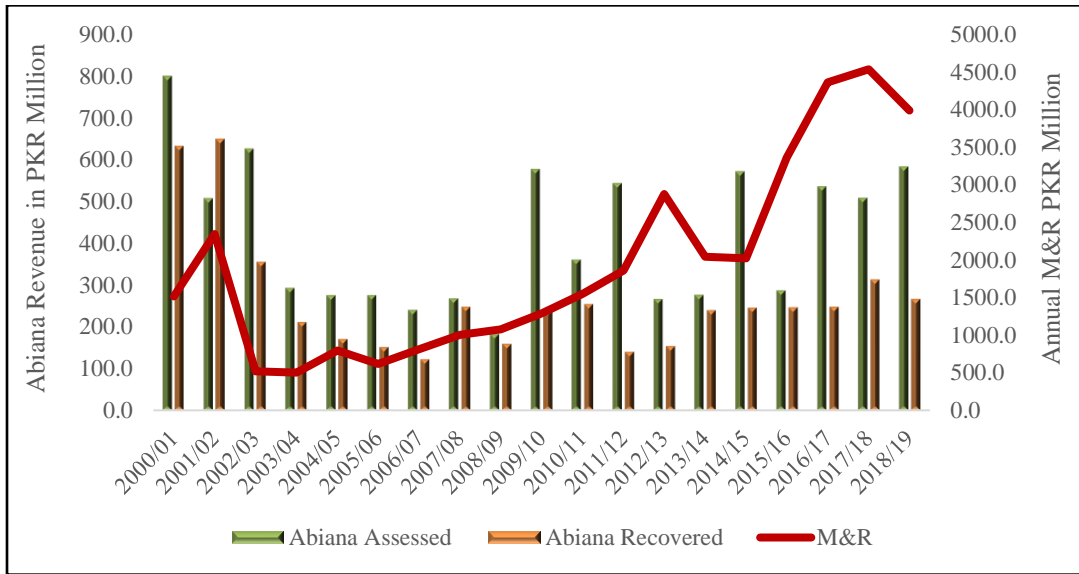
<sup>23</sup> Riverine Area

<sup>24</sup> On the orders of Sindh High Court, the Chief Minister has constituted a Committee to examine all direct outlet along Rohri Canal vide Notification No:SO(C-IV)SGA&CD/4-2/19 dated August 30, 2019, <https://sindh.gov.pk/NOTIFICATIONS/September2019/1snga&cd4-9-19.pdf>

<sup>25</sup> Sindh moved from a flat rate per acre introduced in 1972-73 to crop-based differentiated *Abiana* making farmers sensitive to choice of crop. In 1998/99 Rabi, the wheat support price was PKR 300/40 KG. However, while the *Abiana* rate has remained constant ever since, the wheat support price increased to PKR1300/40 KG in 2015/16.

<sup>26</sup> Louis Berger Ltd., "Preparation Of Regional Master Plan For The Left Bank Of Indus, Delta And Coastal Zone," Phase III, March 2013

**Figure 6. Maintenance & Repair and Abiana Revenue Gap (PKR Million)**



Source: Annual Budget Statements and Budget Analysis of Government of Sindh

#### Gap between Abiana Revenue and Annual Maintenance and Repair (M&R)

Recovered water charges from the water users for agriculture are only a fraction of the annual M&R spending from the budget. Currently, it is only 6.7-6.8 percent of annual M&R spending. Instead of increasing *Abiana* with the rising M&R cost, GoSindh provides funds from general revenues, thus subsidizing the maintenance of irrigation infrastructure (see **Table 4**).<sup>27</sup>

#### Gap between Budget Allocation and Reasonable M&R Requirements

Maintenance of irrigation system is carried out by three different methods: (a) using permanently or seasonally hired labour (Beldars) supervised by Daroghas; (b) using plant and equipment hired from the Mechanical Divisions; and (c) using contractors for both plant and labour. Routine minor maintenance of embankments and structures is carried out by the Beldars, each being allocated a specific length of canal. Greasing of gates etc. is carried out by the Tyndils. Cleaning and desilting of the distributary and minor canals are normally limited to the annual closure period (2-3 weeks in December/January) when both hand labour, bulldozers and sometimes tractors are used.

*Abiana* is assessed by the Irrigation Department and proceeds are collected by the Board of Revenue staff in the field. *Abiana* revenue becomes part of provincial general revenues, instead of retaining it in an escrow account and used for M&R in the areas where these are collected. Consequently, there is no relationship between *Abiana* recoveries and allocation

<sup>27</sup> It is important to make a clear distinction between M&R (the actual funding for maintenance and repairs of the irrigation assets of the Sindh Irrigation Department (SID)) and Operation and Maintenance (O&M). The latter comprises, besides M&R, two additional components: salaries of PID staff and operations budget of PID.



of funds for M&R. Estimates of reasonable O&M costs (yardstick) were designed in 1978/79 by Sindh Irrigation Department and updated in 1988 and then in 2014 based on 2012 activities and costs. The yardstick provided costs per unit of canal, drain, structure etc. (excluding establishment staff costs). According to 2012 yardstick estimates, reasonable annual maintenance comes to around PKR 4,986.754 million and adjusting it with inflation rate upto 2018/2019, to PKR 7,740 million.<sup>28</sup> Nevertheless, this yardstick is hardly used while estimating budget allocation for M&R and quite often, budget allocation is done on adhoc-basis and at times, full budgetary allocation is not released. The general approach is build-neglect-rebuild. For that reason, quite often, a major share of the capital investment is expensed in rehabilitation and rebuilding of the irrigation infrastructure.

Table 4. Gap between M&R Spending and Abiana Revenue

<b>Fiscal Year</b>	<b>Abiana assessment</b>  <b>(PKR million)</b>	<b>Abiana revenue in nominal prices</b> <b>(PKR million)</b>	<b>Abiana revenue in 2005/06 prices</b> <b>(PKR Million)</b>	<b>Abiana recovery rate</b>  <b>(%)</b>	<b>M&amp;R in nominal prices</b>  <b>(PKR million)</b>	<b>M&amp;R in 2005/06 prices</b>  <b>(PKR Million)</b>	<b>Gap between nominal M&amp;R and Abiana revenue</b>  <b>(PKR million)</b>	<b>Abiana revenue as % of M&amp;R spending</b>  <b>(%)</b>
2009/10	577.9	238.0	147.0	41.2	1291.2	797.6	1053.2	18.4
2010/11	360.7	254.2	131.4	70.5	1549.4	800.8	1295.2	16.4
2011/12	544.0	140.0	68.5	25.7	1859.3	909.4	1719.3	7.5
2012/13	266.9	154.0	70.3	57.7	2877.0	1313.7	2723.0	5.4
2013/14	277.0	240.0	102.1	86.6	3043.0	1293.9	2803.0	7.9
2014/15	572.7	246.0	100.2	43.0	2021.0	823.6	1775.0	12.2
2015/16	287.6	247.0	100.2	85.9	3364.0	1364.8	3117.0	7.3
2016/17	536.5	248.7	97.0	46.4	4364.0	1702.8	4115.3	5.7
2017/18	509.2	277.0	105.6	54.4	4602.0	1754.0	4325.0	6.8
2018/19	548.4	267.0	94.7	48.7	3991.0	1415.3	3724.0	6.7

Source: Budget Analysis, Budget books of Government of Sindh, Sindh Irrigation Department

### High Operation and Maintenance (O&M) Cost

Sindh Irrigation Department currently employs a total manpower of 35,743, 98 percent of which are in BPS-1 to 16 and 84 percent of the workforce is in BPS-1 to 5.<sup>29</sup> This increases the O&M cost substantially. Employees' related expenditure is around 65 percent of total actual recurrent expenditure of Irrigation Department. Current M&R spending (about PKR4.0 billion) is 52 percent of the reasonable M&R requirements.

<sup>28</sup> Louis Berger Ltd., "Preparation Of Regional Master Plan For The Left Bank Of Indus, Delta And Coastal Zone," Phase III, March 2013, p. 469

<sup>29</sup> Sindh Budget for 2018-19

Irrigation service delivery by the public sector is generally poor.

Service delivery in surface irrigation systems is characterized by unreliable and inequitable water deliveries<sup>30</sup>, rent seeking behaviour, absence of users' participation in operation, maintenance and management of irrigation services, and lack of a communication strategy to enable farmers to make informed decisions (including information on unscheduled canal closures for maintenance and rehabilitation).

#### Climate Change and Water Security.

While water sector challenges in Sindh are already severe, upstream development and particularly anticipated impacts of climate change, are going to aggravate water scarcity and further impact on water security. A large share of Indus River flows is fed by the glaciers of the western Himalayas; an ecosystem that will dramatically change as temperatures rise and glaciers retreat. Climate change is affecting the western glaciers on which the Indus Basin depends for its water supply.<sup>31</sup> Excessive glacier melting may exacerbate flooding and drainage problems caused by poor maintenance and insufficient storage capacity, especially in the lower parts of the basin in Sindh. While in the longer term, the emptying of glacial reservoirs may result in substantial reductions of available freshwater, with possible 30- 40% decreased river flows<sup>32</sup>. In addition to overall water availability, climate change has the potential to (a) reduce productivity of crops and livestock due to heat stress and other adverse impacts; (b) increased irrigation requirements, due to higher levels of evapotranspiration; (c) uncertainty of irrigation water supplies, as runoff patterns change; (d) changed rainfall patterns, which will particularly impact rainfed areas; (e) increased frequency and intensity of extreme climate events (floods, droughts); and (f) saltwater intrusion, affecting coastal agriculture, forestry and biodiversity.<sup>33</sup>

#### Legal and Institutional Framework

The legal and institutional framework had gradually evolved in Sindh. The sector is still regulated by the Canal and Drainage Act of 1873 and Sindh Irrigation Act, 1879. However, there is no institutional architecture in Sindh that adequately caters to integrated water resources planning and management, with necessary institutions and instruments<sup>34</sup>. While

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<sup>30</sup> Farmers in the tail ends of the canals invariably do not get their share of water due to the poor physical state of the canals, water theft by farmers in upper portions of the system, and rent seeking by operators.

<sup>31</sup> See Winston Yu, Yi-Chen Yang, Andre Savitsky, Donald Alford, Casey Brown, James Wescoat, Dario Debowicz, and Sherman Robinson, "The Indus Basin of Pakistan – The Impacts of Climate Risks on Water and Agriculture", Washington DC, World Bank.

<sup>32</sup> The World Bank, 2005. Pakistan: Country Water Resources Assistance Strategy. Water Economy: Running Dry. Agriculture and Rural Development Sector. South Asia Region

<sup>33</sup> An unpublished note by Toru Konishi of the World Bank

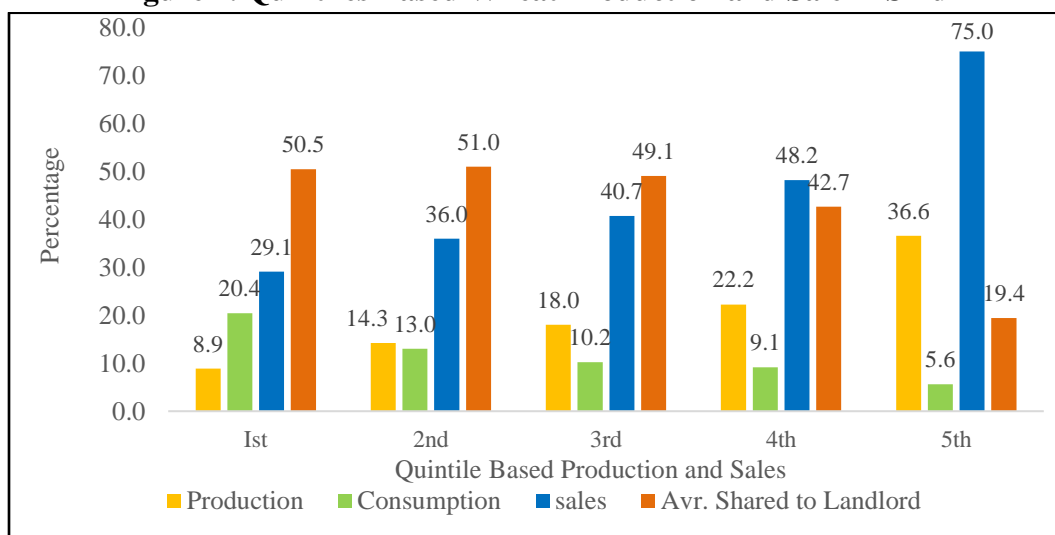
<sup>34</sup> Including preparation of a consolidated water statute (water law).

institutional and governance reforms are critical, even more important is addressing the need for supporting instruments and incentives.

### 4.3 Wheat Procurement Subsidy

Wheat procurement by the government remains a major case of explicit subsidization of Pakistan’s agriculture sector. Every year, the Sindh Food Department procures wheat from farmers at the support price<sup>35</sup> announced by the Government around the time of wheat planting. Quantities procured are stored in Government warehouses or in the open. Market transactions to procure wheat are funded through bank borrowing at the prevailing or negotiated interest rate.

**Figure 7. Quintiles Based Wheat Production and Sale in Sindh**



Source: Household Income-Expenditure Survey 2015-16

Dorosh and Salam (2008) find that only 20 percent households have a surplus of wheat production over home consumption, and 20 percent of farmers are net wheat buyers. In Sindh, 99.4 percent of the farmers are net-sellers of wheat while only 0.6 percent are net buyers in Sindh.<sup>36</sup> Top 20 percent quintile sell **75 percent** of their wheat production while bottom 20 percent of wheat producers sell 29 percent of their production. Bottom 20 percent farmers share more than 50 percent of their wheat production with the landlords which reflect a strong Hari (farmers) and share-cropping system in Sindh. Quintiles based wheat sale is at **Figure 7**. Thus, policies that support high producers’ prices of wheat directly benefit only the small percentage of wheat farmers with wheat surpluses falling in the fourth and top quintiles and wheat millers. Wheat procured is released to

<sup>35</sup> It is still determined by the Economic Committee of the Cabinet on the recommendations of Ministry of National Food Security and Research in consultation with the provinces.

<sup>36</sup> HIES 2015-16

registered mills (on quota basis) at price below the procurement price or a fraction of procurement cost is added to procurement price for making flour (on quota basis) and other products for sale to the public. Large portion of the cost of incidentals including administration cost of the department is financed by the Government of Sindh through budgetary allocation.

Table 5. Urban Per Capita Wheat Availability, Consumption (Kgs/Month) and Price (PKR/Kg)

Year	Availability	Consumption	Gap	Price
2001-02	9.6	8.9	0.7	10.1
2004-05	10.0	8.2	1.8	13.3
2005-06	10.6	8.2	2.4	13.1
2007-08	11.3	7.8	3.5	18.1
2010-11	9.1	7.9	1.2	29.6
2013-14	10.3	7.2	3.1	40.9
2015-16	10.9	7.3	3.6	38.9

Sources: (i) Sohail Jehangir Malik, Hina Nazli and Edward Whitney, "Food Consumption Patterns and Implications for Poverty Reduction in Pakistan"; (ii) Waqar Akram and Shida Henneberry, "Consumption Patterns of Urban Punjab of Pakistan: Evidence from HIES 2013-14"; HIES 2015-16 (Consumption), Economic Survey of Pakistan (Price of Wheat Flour), Agriculture Statistics of Pakistan (Availability)

The support price for wheat has been consistently rising over time. It increased by 150 percent between 1993/94 to 2004/05 (from PKR 160 to 400 per 40 KGs) and by another 225 percent since then (from PKR 400 to 1300 KGs). In 2015 Rabi season, the wheat procurement price was fixed at PKR1300/40Kgs (US\$351/metric ton at \$-PKR parity rate prevalent at time), The high procurement price has resulted in (i) production of wheat in excess of domestic needs as annual average per capita consumption declined from 107 Kg in 2001/02 to 86 Kg in 2015/16 in **urban areas (Table 5)**; (ii) annual procurement by the GoSindh of on average 1.4 million tons from the marketed surplus (**Table 6**); (iii) an import tariff of 60% on imported wheat to ensure that government is able to sell the wheat procured; (iv) urban consumers and the rural poor, who are net consumers of wheat, are paying significantly higher prices than they would in a liberalized wheat market; and (v) huge stocks in Sindh, well above requirements (1.8 million tons as of end November 2018).

Table 6. Utilization/Disposal of Wheat Production in Sindh

	Million Metric Tons	Percentage
<b>Total Production</b>	<b>4.70</b>	<b>100</b>
On-Farm Consumption	0.70	15
Feed and Seed	0.47	10
Farm Labour Compensation	-	-
Post-Harvest Losses	0.23	5
<b>Total Marketable Surplus</b>	<b>3.30</b>	<b>70</b>
Government Procurement	1.40	29.8
Available for Private Trade	1.90	40.2

Source: Food Departments, Governments of Sindh

The procurement system has enormous costs to provincial exchequer. The direct cost of buying, bagging, storing and releasing wheat at a price lower than the procurement price are estimated at PKR10.6 billion per year in case of Sindh. A major portion of these costs consist of interest payments both on current borrowings and accumulated debt which is 62 percent of total incidentals in Sindh (see **Table 7**). Sindh has incurred a possible financial loss of PKR76.0 billion since 2005/2006 because of wheat procurement operation cost that increased from PKR0.4 billion in 2006/07 to PKR10.6 billion in 2017/18 annually. The average annual loss over the period FY2006-FY2010 is PKR3.6 billion while it has doubled over the period FY2011-FY2018 to PKR 7.2 billion (see **Table 8**).

Table 7. Costs of Government Wheat Procurement

Costs/Revenue	Sindh PKR MT
Procurement Price	32,750.00
Bank Commission	121.90
Transportation Charges	1,000.00
Godown/Storage Expenses	750.00
Bank Mark-up	4,716.30
Gunny Bags	1,086.65
<b>Cost of Procurement</b>	<b>40,424.85</b>
Wheat Release Price to Millers	32,825.00
Financial Loss by the Government	7,599.85
<b>Implicit Government Subsidy as % of Cost</b>	<b>19%</b>
Mark-up Liability as %age of Incidentals	<b>62%</b>

Source: Food Department, Governments of Sindh

Table 8. Wheat Procurement Unit Subsidy and Total Subsidy: 2005-06 to 2017-18

Year	Procurement Price per 40 Kg	Procurement Price Per KG	Incidental Cost/Kg	Cost Price Per Kg	Release Price Per Kg	Subsidy Per Kg	Total Procurement (Million MT)	Total Procurement Cost (PKR Billion)	Expected Return from Sale of Stock (PKR Billion)	Financial Loss (PKR Billion) <sup>37</sup>
1	2	3	4	5	6	7	8	9	10	11
		Col 2/40		3 + 4		5-6		Col 8 x col 5	Col 8 x col 6	
2009-10	950	23.75	4.97	28.72	25.24	3.48	1.496	43.0	37.8	5.2
2010-11	950	23.75	6.14	29.89	25.50	4.39	1.412	42.2	36.0	6.2
2011-12	1050	26.25	7.08	33.33	28.00	5.33	1.290	43.0	36.1	6.9
2012-13	1200	30.00	6.50	36.50	30.00	6.50	1.056	38.5	31.7	6.9
2013-14	1200	30.00	6.50	36.50	34.50	2.00	1.216	44.4	42.0	2.4
2014-15	1300	32.50	7.07	39.57	32.50	7.07	0.892	35.3	29.0	6.3
2015-16	1300	32.50	7.59	40.09	32.50	7.59	1.098	44.0	35.7	8.3
2016-17	1300	32.50	7.71	40.21	32.87	7.34	1.400	56.3	46.0	10.3
2017-18	1300	32.50	7.93	40.43	32.83	7.60	1.400	56.6	46.0	10.6
Total										76.0
<b>Avg. FY06-10</b>										3.6
<b>Avg. FY11-18</b>										7.2

Source: Food Department, Government of Sindh

<sup>37</sup> Financial loss for each year is calculated as the unit subsidy (domestic procurement price plus the cost of incidentals minus the release price) times the quantity of domestic procurement.

The indirect costs include physical losses due to poor storage and high spoilage, pilferage, over production of wheat and a consequent under production of other high value commodities; and diversion of credit from the banking system. According to recent media reports, allegedly between 2 to 2.5 million bags were either missing from warehouses or misappropriated.<sup>38</sup> Following this widespread reporting, the Government of Sindh decided not to procure wheat during Rabi 2019. The situation worsens further when bank borrowings are not retired through the revenues generated from the sale of collateral stock of wheat. This has resulted in wheat debt of the GoSindh accumulated to PKR 150 billion which is owed to the State Bank of Pakistan.

Additionally, the Economic Committee of the Cabinet in June 2016 approved an export subsidy of US\$120 per ton to dispose of excess stocks of wheat to be shared equally by the federal and provincial governments. Even with this subsidy, the provincial governments have been able to export only 4 million tons since January 2011. Sindh has exported 1.293 million ton since 2011/12 paying a total subsidy of US\$62.4 million (PKR677 million). An equal amount has been paid by the federal government as subsidy. Likewise, the GoSindh paid subsidy on sugar export.

## **5 Provincial Taxes on Agriculture in Sindh**

Agriculture land is taxed in three ways, i.e. (i) land-based tax, (ii) agriculture income tax, and (iii) water charges.<sup>39</sup> Both the land-based tax and the agricultural income tax apply only to cultivated land. In addition, there is “land revenue” which are fees levied by the competent authorities on any transaction involving land, especially those related to transfer of land ownership but also document fees, etc. Sindh has levied agricultural land tax at flat rate of PKR200 per acre for irrigated land, PKR100 per acre for unirrigated land, PKR700 per acre of irrigated orchards and PKR350 per acre of unirrigated orchards.<sup>40</sup> Typically, Land Tax is required to be assessed for the Kharif and Rabi separately under the law. However, the land tax is not assessed and charged from the owner for the land cultivated in Rabi if the same land was cultivated and taxed during Kharif. Collection of the land-based tax is a two-step process, i.e. (i) minimum advance tax, and (ii) final assessment of land-based tax payable. If the final assessment is lower than minimum advance tax (MAT), the later will be considered as the final payment.

Agricultural income tax is levied only on land owners with more than 50 acres of irrigated land or more than 100 acres of unirrigated land. The tax is charged on income net of cost of production.

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<sup>38</sup> Daily Dawn, “Sindh Food Dept Embroiled in Mega Corruption Scam Involving Wheat Procurement”, May 27, 2019, <https://www.dawn.com/news/1484567>. Reported National Accountability Bureau and Sindh Anti-Corruption Department are investigating the scam.

<sup>39</sup> Traditionally there also is a stamp duty and registration fee - under a digital/computerized land records system these are being paid through financial institutions which reduces interaction with the land registration bureaucracy.

<sup>40</sup> Sindh Land Tax and Agricultural Income Tax Ordinance, 2000 (Amendment) Act, 2018.

Categories for agricultural income tax are: (a) agriculture income net of costs upto PKR1,200,000 is exempt; (b) 5 percent of the income greater than PKR1,200,000; (c) PKR60,000 plus 10 percent of the amount exceeding PKR2,400,000; and (d) PKR300,000 plus 15 percent of the amount exceeding PKR4,800,000.

The revenue from *Abiana* (water charges) is quite low due to (i) extremely low rates last fixed in 2000/2001; (ii) the difference between water *abiana* assessment if based on “true” area sown, and actual assessments made by the provincial irrigation department/Area Water Boards; (iii) the gap between *abiana* as assessed by the irrigation department and *abiana* actually collected – in case of Sindh last year collection was 48 percent of *abiana* assessed.

The collection from agriculture land taxation is low as compared to its potential, 0.5 percent of total provincial receipts in 2018-19, declining from 1.5 percent of provincial receipts in 2009-10, or 0.16 percent of Sindh AgGDP. It is mainly because of exemptions extended to agricultural income upto PKR 1.2 million, low rate of land tax, and low water charges rate. **Table 9** provides details of revenue collected from three sources.

Table 9. Revenue Collection from Sindh Agriculture Sector (PKR Million)

Year	AIT	Land Revenue	Abiana	Total	Percentage of Provincial Receipts	Percentage of Sindh Farm GDP
2009-10	153	156	238.0	547.0	1.5	0.15
2010-11	210	347	254.2	811.2	1.5	0.15
2011-12	123	208	140.0	471.0	0.7	0.10
2012-13	406	205	154.0	765.0	0.9	0.15
2013-14	276	203	240.0	719.0	0.8	0.12
2014-15	341	177	246.0	764.0	0.7	0.12
2015-16	340	204	247.0	791.0	0.6	0.13
2016-17	466	236	248.7	950.7	0.6	0.15
2017-18	559	288	277.0	1124.0	0.6	0.16
2018-19	578	226	267.0	1071.0	0.5	0.16

Source: Financial Statements, Budget Analysis of Sindh, and Quarterly Reports of Sindh

## 6 Fiscal Space for Agriculture and Irrigation: Key Recommendations

As discussed above, public investment in agriculture sector has declined substantially over the years in Sindh despite four-fold increase in resource availability since 2009/2010, post 18<sup>th</sup> Constitutional Amendment and 7<sup>th</sup> NFC Award (see **Table 1**). The nominal development spending on agriculture and irrigation increased at an ACGR of 14.5 percent during 2010/2011 to 2018/2019 as opposed to 31.3 percent during pre-7<sup>th</sup> NFC Award (2000/2001 to 2009/2010). Public investment in the farm sub-sector increased at an ACGR of 3.4 percent during FY2011-2019. Its share has declined from 7.3 percent in 2010/2011 to 2.4 percent of the total public sector

investment in 2017/18. Finding fiscal space for allocating additional resources for agriculture in Sindh is quite despite their importance in relation to growth, poverty and welfare of the poorest households. The government has been borrowing from International Financial Institutions (IFIs) and other bilateral donors to finance some of the key initiatives in these two sectors.<sup>41</sup>

Revenue collection from farm sector in Sindh ranges between 0.5 and 0.6 percent of provincial own revenue receipts or 0.16 percent of farm-subsector GDP while gross subsidies (federal and provincial) to farm sector are 9 percent of Sindh farm-GDP or 3 percent of AgGDP. The provincial subsidies provided to the farm-subsector are 3 percent of Sindh farm-GDP or 1 percent of Sindh AgGDP. Revenue collection from Agriculture Income Tax, Land Revenue, and *Abiana* (water charge) during 2018/2019 was PKR1,071 million (see **Table 9**) while the total expenditure on Agriculture and Irrigation was PKR62,109 million. Thus, revenue collection as percentage of total expenditure on these two sectors is 1.7 percent. Additional fiscal space can be created for agriculture and irrigation by rationalizing subsidies, both direct and implicit. considering the following measures:

## 6.1 Wheat Procurement:

- (i) ***Reduce Wheat Procurement:*** Given the large-scale misappropriation of wheat from the Government warehouses and huge expense of public sector resources in procurement and its maintenance, the Government of Sindh may consider procuring wheat only for sustaining strategic reserve not exceeding 400,000 MT to meet the requirements of emergencies and disasters. It can reduce the financial cost from current level of PKR10.6 billion annually to PKR3.0 billion, saving around PKR7.6 billion as well as various indirect costs.
- (ii) ***Enhance Storage Capacity:*** Sindh government should build new advanced silo storages on public-private partnership basis for maintaining the strategic reserve to mitigate unpredictable circumstances.
- (iii) ***Private Sector Participation:*** The private sector needs to be incentivized to engage in wheat procurement market to lower the burden of subsidy provided by the government of Sindh. Food department could set a floor price to save farmer incentives and to get wheat production up to set targets.

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<sup>41</sup> (i) Modernizing Guddu Barrage (US\$191 million), Sindh Agriculture Growth (US\$76.4 million), Sindh Water Sector Improvement Project (US\$138 million), Sindh Irrigated Agriculture Productivity Enhancement Program (US\$187 million), Sukkur Barrage (US\$500 million).



- (iv) **Enhancing farmer's capabilities:** There is also a need to introduce programs to enhance farmers' capacity to diversify to high-value crops.
- (v) **Rationalizing Food Department:** Reducing the quantity of wheat procurement quantity will also allow the Government to downsize the Food Department to one-third of its current size. The surplus staff can then be retrained and reoriented towards Sindh Food Authority. It will also encourage the private sector to build modern silos and storages. This will provide additional savings in the budget by bringing down the administrative cost from PKR1.5 billion to PKR0.5 billion.
- (vi) **Parity between AIT and Non-Agriculture Income Tax:** Bringing tax rate on agriculture income at par with tax rates on non-agricultural income by amending the Agriculture Income Tax Ordinance 2000. This will increase tax burden on agriculture sector substantially for all slabs of taxable income but can increase agriculture income tax revenue at least 3-5 times of current level. It may also discourage hiding black money as agriculture income because of very low tax rates (see **Table 10**).

Table 10. Tax on Agriculture and Non-Agriculture Income

Non-Agriculture Income		Agriculture Income Tax in Sindh		
Taxable Income	Tax Rate	Current Tax Rate	Current Tax Amount	Proposed Tax at par with Non-Agriculture Income
< PKR 400,000	Exempt	Exempt	Exempt	Exempt
> PKR 400,000 but <=PKR 600,000	5% of the amount > PKR 400,000	Exempt	Exempt	From PKR 5 to a max PKR 10,000
> PKR 600,000 but <=PKR 1,200,000	PKR 10,000 plus 10% of the amount > PKR 600,000	Exempt	Exempt	From PKR 10,001 to a max 60,000
> PKR 1,200,000 but <=PKR 2,400,000	PKR 70,000 plus 15% of the amount > PKR 1,200,000	5% of the amount > PKR 1,200,000 but <=PKR 2,400,000	From PKR 5 to a max 60,000	From PKR 70001 to a max PKR 250,000
> PKR 2,400,000 but <=PKR 3,000,000	PKR 250,000 plus 20% of the amount > PKR 2,400,000	PKR 60,000 plus 10% of the amount exceeding PKR 2,400,000 but <=PKR 4,800,000	From PKR 60,001 to a max PKR300,000	From PKR 250,002 to a max of PKR 370,000
> PKR 3,000,000 but <=PKR 4,000,000	PKR 370,000 plus 25% of the amount > PKR 3,000,000	PKR 300,000 plus 15% of the amount exceeding PKR 4,800,000	From PKR 300,001 onwards	From PKR 370,001 to a max of PKR 620,000
> PKR 4,000,000 but <=PKR 6,000,000	PKR 620,000 plus 30% of the amount > PKR 4,000,000			From PKR 620,001 to a max of PKR1,220,000
> PKR 6,000,000	PKR 1,220,000 plus 35% of the amount > PKR 6,000,000			From PKR 1,220,001 onwards

## 6.2 Irrigation:

- (vii) ***Assessment of current status of irrigation system:*** It is important that the Sindh Government may assess the current status of irrigation infrastructure through independent third party or get the 2013 study updated to assess the current M&R and O&M requirements for better policy options.
- (viii) ***Increase in Abiana:*** The cost of irrigation infrastructure and maintenance is picked up by tax payers as *Abiana* covers only 7 percent of annual maintenance and repair cost. Deferred maintenance adversely affect performance. The Government of Sindh may consider rationalizing *Abiana* gradually over the next five to seven years such that it can cover full annual maintenance and repair cost; and in second phase, recover full operation and maintenance cost. The later will need rationalizing manpower of Sindh Irrigation Department. The Government may also consider outsourcing M&R to private sector on pilot basis. It is expected to save PKR4.0-4.5 billion.
- (ix) ***Increase Irrigation System Efficiency:*** Regular and effective Maintenance and Repair of irrigation infrastructure will help in controlling the water losses through leakages, theft, and pumping as the service improves. It will add to the savings accruing because of reforms.
- (x) ***Increasing Water Use Efficiency:*** Improving water use efficiency is also a key to preserve water resources. High Efficiency Irrigation Systems (HEIS) are important water conservation tools and should be further stimulated in Sindh. Current Sindh-Irrigated Agriculture Productivity Enhancement Project needs to be pushed to expand it to throughout Sindh.
- (xi) ***Introduction of Solar-Drip Irrigation Systems for production of Vegetables:*** Solar based drip irrigation system should be introduced for high value crops (Vegetables and other horticulture crops)

## 6.3 Effective Targeting of Subsidies:

- (xii) ***Sugar Export Subsidy:*** Sugar export is a private business transaction and not public good. The Government, therefore, allows the private sector to reduce the cost of their production or bear the export cost themselves, else it would imply financing private sector inefficiencies. It will save around PKR2.5-3.5 billion.



Fiscal space so created from within existing resources can be considered for additional investment in agriculture, water, livestock and fisheries sub-sectors for:

- (i) ***Targeted Subsidies:*** Subsidies may be targeted to small farmers owning land less than 5 hectares for agricultural inputs.
- (ii) ***Agriculture Innovation System:*** Agriculture Innovation System including enhanced allocation for Research and Development may be designed in Sindh and implemented. There is a need to develop high value crops seed and salinity tolerant seed suitable to local soil and condition as well as quality improvement of seeds for other crops.
- (iii) ***Incentivizing HVA and CRA:*** It is important to incentivize farmers to shift to high value, for which there is huge potential, with development of supporting logistics and marketing and climate resilient agriculture in Sindh.
- (iv) ***Encouraging Contract Farming:*** There is need to encourage contract farming along with legal back-up to minimize risk at farmer's end. For this purpose, Education of the farmers about contract farming, supportive marketing structure and facilitating contract farming firms can play a vital role to increase contract farming practice.
- (v) ***Developing Agriculture Service Hubs:*** Government may allocate resources to establish agriculture service hubs or farm service centres which can cater for all needs of the small farmers, such as, provision of modern agriculture machinery (Laser, Land Leveller, combine harvesters, planters etc.) at Tehsil level to increase agricultural productivity in the province.
- (iv) ***Supporting Livestock:*** Measures may be taken to promote high quality breed and tracing and tracking programs for livestock in the province.
- (vi) ***Focusing on Preventive Side:*** The Government may shift resources from curative to preventive for livestock and encourage the private sector to assume full responsibilities of curative side.
- (vii) ***Agriculture Insurance:*** The Government may also consider introducing agriculture and livestock insurance to enhance resilience of farmers against natural disaster.

- (viii) ***Exploiting Fisheries Potential:*** Sindh is rich in land and marine fisheries. The Government may take measures including enforcing European standards to exploit full potential of fisheries.
- (ix) ***Improving Markets:*** The Government needs to invest in modernizing agricultural produce and livestock markets and take necessary measures to operationalize Sindh Agriculture Produce Marketing Act, 2010.
- (x) ***Governance Improvement:*** There is a need to improve governance of water, agriculture, livestock, and fisheries sub-sectors. It includes sharpening the existing legal regime and providing support mechanism for its effective enforcement.



## BIBLIOGRAPHY

Akram, Waqar, and Henneberry, Shida. 2016. “*Consumption Patterns of Urban Punjab of Pakistan: Evidence from HIES 2013-14*”. Selected Paper prepared for presentation at the 2016 Agricultural & Applied Economics Association Annual Meeting, Boston, MA, July 31 – August 2, 2016.

Alesina, A. and R. Perotti. 1996. Fiscal Discipline and the Budget Process. *American Economic Review* 86 (2): 401–407.

Azad A., M. A. Rasheed and Y. Memon, 2003, *Sindh Water Resources Management – Issues and Options*, Occasional Paper Series No. 15. FAO Investment Centre

Fan, S., B. Yu, and A. Saurkar. 2008. “Public Spending in Developing Countries: Trends, Determination, and Impact. In *Public Expenditures, Growth, and Poverty: Lessons from Developing Countries*, edited by S. Fan. Baltimore: Johns Hopkins University Press.

Louis Berger Ltd. 2013. “*Preparation Of Regional Master Plan For The Left Bank Of Indus, Delta And Coastal Zone*,” Phase III.

Malik, Sohail Jehangir, Nazli, Hina, and Whitney Edward. 2014. “*Food Consumption Patterns and Implications for Poverty Reduction in Pakistan*”. Paper submitted to the 30th GM & Conference of Pakistan Society of Development Economists, Islamabad, Pakistan, December 4-6, 2014

Mogues, T., Fan, S. & Benin, S. *Eur J Dev Res* (2015) 27: 337.

<https://doi.org/10.1057/ejdr.2015.40>

Government of Pakistan, Auditor General of Pakistan, *Financial Statements of various years*.

Government of Pakistan, Ministry of Finance, *NFC Biannual Reports*.

Government of Pakistan, Ministry of National Food Security and Research, *Agriculture Statistics various issues*.

Government of Pakistan, Pakistan Bureau of Statistics, Household Income and Expenditure Survey (HIES) 2015-16, Islamabad: <http://www.pbs.gov.pk/content/pakistan-social-and-living-standards-measurement>.

Government of Pakistan, Pakistan Bureau of Statistics, Agriculture Census, 2010.

Government of Pakistan, Planning and Development Department, 2016, *The Irrigation Management Strategy of Irrigated Agriculture of Sindh Province*, 4<sup>th</sup> Draft. Project Coordination and Monitoring Unit. *Sindh Water Sector Improvement Project*.

Government of Sindh, Sindh Bureau of Statistics, Sindh Development Statistics 2017.

Government of Sindh, Finance Department, *Budget Analysis, Various Issues*.

Government of Sindh, Finance Department, *Annual Budget Statements various issues*.

Haq, Zahoor, Hina Nazli, Karl Meilke, Muhammad Ishaq, Amjad Khattak, Arshad H. Hashmi and Fasih Ur Rehman (2011). "Food Demand Patterns in Pakistani Punjab". *Sarhad Journal of Agriculture*. Vol.27, No.2.

International Food Policy Research Institute, 2019. *Agriculture Science and Technology Indicators (ASTI)*.

IUCN, 2007, *Sindh Strategy for Sustainable Development. International Union for the Conservation of Nature*.

Toru Konishi, *Sindh Province: Program for Improving Water Resources Management and Increasing Climate Resiliency*, An Unpublished Paper, 2018.

World Bank, 2018, *Pakistan: Pathways to Water Security. Pakistan Water Security Diagnostic (P165845)*.

World Bank, 2005. *Pakistan: Country Water Resources Assistance Strategy. Water Economy: Running Dry, Agriculture and Rural Development Sector. South Asia Region*,

Yu, Winston., Yang, Yi-Chen., Savitsky, Andre., Alford, Donald., Brown, Casey., Wescoat, James., Debowicz, Dario., and Robinson, Sherman, "The Indus Basin of Pakistan – The Impacts of Climate Risks on Water and Agriculture", Washington DC, World Bank