



**The World Bank**

Sindh Livestock and Aquaculture Sectors Transformation Project (P179003)

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# Project Information Document (PID)

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Concept Stage | Date Prepared/Updated: 26-Apr-2023 | Report No: PIDC34242

**BASIC INFORMATION****A. Basic Project Data**

Country Pakistan	Project ID P179003	Parent Project ID (if any)	Project Name Sindh Livestock and Aquaculture Sectors Transformation Project (P179003)
Region SOUTH ASIA	Estimated Appraisal Date Jan 09, 2024	Estimated Board Date Jul 24, 2024	Practice Area (Lead) Agriculture and Food
Financing Instrument Investment Project Financing	Borrower(s) Islamic Republic of Pakistan	Implementing Agency Livestock and Fisheries Department, Sindh Province	

**Proposed Development Objective(s)**

To support the competitive, inclusive, green, and resilient development of the livestock and aquaculture sectors in Sindh

**PROJECT FINANCING DATA (US\$, Millions)****SUMMARY**

<b>Total Project Cost</b>	125.00
<b>Total Financing</b>	125.00
<b>of which IBRD/IDA</b>	125.00
<b>Financing Gap</b>	0.00

**DETAILS****World Bank Group Financing**

International Development Association (IDA)	125.00
IDA Credit	125.00

Environmental and Social Risk Classification

Concept Review Decision



Substantial

Track II-The review did authorize the preparation to continue

## B. Introduction and Context

### Country Context

1. Over the past two decades, Pakistan has achieved significant poverty reduction, but human development outcomes have lagged, and economic growth has remained volatile and slow. Expansion of off-farm economic opportunities and the increase in migration and associated remittances allowed over 47 million Pakistanis to escape poverty between 2001 and 2018. Despite rapid poverty reduction, human capital outcomes have remained poor and stagnant, with high levels of stunting at 38 percent and learning poverty at 75 percent. Pakistan has also experienced frequent macroeconomic crises due to a growth model based on private and government consumption, with productivity-enhancing investment and exports contributing relatively limited gains. Growth of per capita gross domestic product (GDP) has been low, averaging under 2 percent in the last two decades. Recent unprecedented floods are likely to have serious impacts on poverty, human development outcomes, and economic growth.

### Sectoral and Institutional Context

2. The livestock and aquaculture sectors play a major role in the economy in Pakistan and in Sindh. The agriculture sector's contribution to the economy and livelihoods is highly significant. Nationally, agriculture accounts for about 24 percent of GDP and directly and indirectly delivers nearly 80 percent of the total value of Pakistan's exports. The sector is vital for food security and is the single-largest employer, with over 40 percent of Pakistan's labor force, including the vast majority of employed women engaged in farm activities in some capacity. In Sindh, agriculture contributes 24 percent of provincial GDP and 70 percent of employment. The livestock and aquaculture sectors contribute over 50 percent of the agriculture GDP, about 12 percent of national GDP, and about 3.7 percent of total exports. Pakistan is the third largest milk producer, the third largest producer of small ruminants meat, and the 11<sup>th</sup> largest poultry producer in the world. It is also home to the world's fifth largest cattle and buffalo herd. Sindh Province alone hosts 20 percent of the national cattle and buffalo population, and 19 percent of small ruminants. While Pakistan is only the 28<sup>th</sup> largest aquaculture producer worldwide,<sup>1</sup> the fisheries and aquaculture sector experienced fast growth in the past decade.<sup>2</sup> Aquaculture accounts for about 35 percent of total fisheries production with Sindh contributing 62 percent.
3. Improving the growth of the livestock and aquaculture sectors,<sup>3</sup> especially among small and medium farmers, is essential to achieving poverty reduction and shared prosperity. Poverty in Pakistan remains concentrated among rural households relying on agriculture. In 2018-19, rural poverty was 43.5 percent, more than twice as high as urban poverty (18.5 percent). In Sindh, about 30-35 percent of the population lives below the poverty line and the poor are found to derive 56 percent of their income from agriculture.<sup>4</sup> Livestock provides critical income security for many rural households and is of particular importance to women and people lacking clear land tenure rights.<sup>5</sup> For a smallholder household with limited access to credit and insurance, livestock assets provide a safety net, as animals can easily be sold in case of climatic shock, food shortage, social event, or health problem. Livestock and aquaculture also contribute significantly to nutrition. Currently around 70 percent of milk is consumed at home resulting in seven to eight liters of milk consumed per household per day. At the same time, the prevalence undernourishment and stunting in children

<sup>1</sup> Revitalizing Pakistan's Fisheries: Options for Sustainable Development. Washington, DC, The World Bank Group and AFD

<sup>2</sup> World Bank (forthcoming): Draft report: Aquaculture Waste Management in the Republic of Korea and Pakistan: An Overview. Volume 1

<sup>3</sup> The project will focus on aquaculture production (see Components 1 and 2) and to a smaller extent on inland fisheries (see Component 1)

<sup>4</sup> Rana, W. (2019): Creating fiscal space for enhancing public investment in Sindh agriculture sector. PACE policy research paper.

<sup>5</sup> World Bank (2022): *Pakistan Country Climate and Development Report*. Washington, DC.



under five in Sindh is 34 percent and 45.5 percent respectively and exceed the national averages of 20 percent and 40 percent respectively.<sup>6</sup> Greater and quality fish consumption, which provides nutrients and healthy fats, can further contribute to improved nutrition, especially among the poor.

4. **There are market opportunities to be seized for both the domestic and export markets.** With rapid urbanization and fast income growth, dietary patterns are changing. Pakistan is seeing an increase in the share of household expenditure on high value food products and a decrease in the share of cereals and other crops, as illustrated by the significant increase in domestic demand for livestock and fish products over the past decade.<sup>7</sup> In addition, it is estimated that domestic livestock production will need to increase considerably to meet projected domestic demand. Domestic demand for fish products is expected to rise as well, in a country where average per capita fish consumption is low compared to global and regional averages (i.e., less than 2kg versus about 20kg per capita respectively). According to the International Trade Center, there is a significant untapped export potential for whole and frozen fish, shrimps, and prawn, leather goods (apparel and gloves), and to a lesser extent, for exports of live animals and related products (meat, milk, eggs).<sup>8</sup> Greater value addition along the agri-food value chain (VC) will, however, be needed to meet domestic and export market requirements.
5. **On-farm and off-farm constraints are slowing down the modernization of the livestock and aquaculture sectors.** Livestock and aquaculture production is currently ill-equipped to meet the growing market demand in a sustainable, climate-smart way. On-farm productivity is low, especially among small and medium farmers,<sup>9</sup> notably because of (i) their limited scale of production and limited use of farmer aggregation models limiting economies of scale; (ii) limited adoption of good production practices and lack of access to inputs, equipment, and services, including extension services, animal health services, and control of animal diseases; and (iii) producers' undercapitalization and challenging access to finance curbing their ability to invest in upgrading their equipment, innovation, production, and marketing. In addition, aquaculture is constrained by the increasing environmental stress from extensive groundwater abstraction and risk of salinization, pollution, agricultural land expansion, and lack of sectoral governance. Low productivity in livestock and aquaculture also translates in high greenhouse gas (GHG) emissions intensity, but with broad variations across production systems and regions. Off-farm value addition and commercialization are constrained by the livestock and aquaculture sectors' inefficiencies, such as market aggregation failures (e.g., limited farmer aggregation, poorly functioning wholesale produce markets), high transaction costs, inefficient post-harvest practices, and poor infrastructure supporting storage and farm-to-market transport. Post-harvest losses in dairy are estimated around 20 percent due to poor infrastructure for milk collection and processing.<sup>10</sup> The sectors also face food safety challenges across the VC that limit their growth potential (e.g., most milk is marketed raw and cold chain is limited for milk and meat distribution), and include inadequate food safety regulations and enforcement, and a lack of quality standards, traceability, and certification schemes.<sup>11</sup>
6. **On-farm and off-farm constraints are exacerbated by challenges in access to finance.** Many farmers—especially small and medium farmers—lack the means to procure the working capital, productive assets, and technical assistance (TA) they would need to increase, diversify, add value to, and commercialize their production in a climate-smart way. Commercial banks are the primary formal lender to the agriculture sector with a 66 percent market share of agriculture lending.<sup>12</sup> Agriculture lending is heavily skewed towards processing, with lending for food processing

<sup>6</sup> FAO, WFP, WHO, UNICEF (2020): Pakistan Overview of Food Security and Nutrition.

<sup>7</sup> For instance, total growth in demand over the period 2010-2019 increased notably in Pakistan: Milk: +34 percent; Eggs: +31 percent; Red Meat: +6 percent; Poultry meat: +10 percent. Source: FAOSTAT (2022): Supply Utilization Accounts, 2019.

<sup>8</sup> ITC export potential Map, <https://exportpotential.intracen.org/en/>. Accessed in October 2022

<sup>9</sup> Source: Bellinguex, A., and Memon, J. (2022): *Sindh's livestock: Getting to now an important but neglected sector*. World Bank Group. WDC.

<sup>10</sup> IFC (2021): *Creating Markets in Pakistan: Country Private Sector Diagnostic*. IFC, Washington DC.

<sup>11</sup> World Bank (2020): *Islamic Republic of Pakistan: Leveling the Playing Field (Systematic Country Diagnostic)*. World Bank, Washington DC.

<sup>12</sup> State Bank of Pakistan (2022): <https://www.sbp.org.pk/acd/Events/targets/2022/Analysis-June-2022.pdf>; [accessed September 2022]



almost three times higher than lending for crop and animal production.<sup>13</sup> Loans to crop and animal production tend to go to larger farmers, which account for more than 70 percent of disbursements.<sup>14</sup> Financial institutions (FIs) are unable to meet the financing needs of small and medium farmers because of a mix of demand-side constraints on the part of farmers and supply-side constraints on the part of FIs. Although disbursements have approximately doubled from 2016 to 2021 (PKR 1.36 trillion in 2021), they still fall far short of the National Financial Inclusion Strategy targets set by State Bank of Pakistan. The market failure in lending to small and medium farmers is even more severe for the financing of technology and upgradations, as currently 93 percent of disbursements are for production inputs and less than seven percent for development, including for equipment and technology.<sup>15</sup> Micro-finance providers (including banks and institutions) accounted for a third of the lending to the agriculture sector in 2021 and average loan size tended to be small and short-term, making it difficult to finance innovative machinery.<sup>16</sup> As a result, small and medium farmers access finance predominantly from the informal sector<sup>17</sup> that can capture up to 80 percent of the farmer's expected profit and provides only short-term seasonal loans often associated with pre-harvest purchase of the farmer's production at a below-market price.<sup>18</sup>

- 7. Women play a major and growing role in the livestock sector in Sindh and their position in production could be strengthened.** In Sindh, approximately 31 percent of women depend on livestock as a source of livelihood. Livestock management is primarily dependent on women, with daily livestock care and the processing and marketing of milk being the main occupation of rural women.<sup>19</sup> Women usually manage small dairy farms (3-5 animals) and are primarily in charge of milk processing.<sup>20,21</sup> Women's role in fisheries and aquaculture is often greatest in the post-harvest stages, such as cleaning, processing, and distribution of the catch.<sup>22</sup> Barriers such as social norms, lack of access to information and credit, low literacy, household and childcare duties, and restricted mobility limit women's participation in both the livestock and aquaculture sectors, resulting in women's lower productivity and income. Most milk marketing is done by men, due to limited mobility options for women, male-dominated dairy cooperatives and milk collecting centers,<sup>23</sup> and social norms that perceive women's primary role as homemakers or their labor as inferior and leaves women at risk of exploitation. The low participation of women in farming-related decision-making processes further deprives women producers from accessing innovations, extension services, entrepreneurship training, and technologies, which ultimately limits their potential to grow and increase their incomes in livestock and aquaculture. Social factors have also led to a lack of voice and agency among women farmers regarding access to natural as well as financial resources. A large income gap between men and women working in livestock<sup>24</sup> and aquaculture persists. Women earn a third of what men earn and working conditions in processing and retail are poor.<sup>25</sup> Finally, the lack of sex disaggregated data within livestock and aquaculture contributes to limited practical recommendations and policies promoting gender equality.<sup>26</sup>

<sup>13</sup> State Bank of Pakistan (2021): <https://www.sbp.org.pk/ecodata/By-type-of-finance.pdf>.

<sup>14</sup> State Bank of Pakistan (2021): <https://www.sbp.org.pk/acd/PWS-Jul-Jun-2021.pdf>.

<sup>15</sup> State Bank of Pakistan (2021): [https://www.sbp.org.pk/departments/stats/PakEconomy\\_HandBook/Chap-4.12.pdf](https://www.sbp.org.pk/departments/stats/PakEconomy_HandBook/Chap-4.12.pdf).

<sup>16</sup> Ministry of Finance 2021 Survey; Source: <https://www.sbp.org.pk/acd/Events/targets/2022/Analysis-June-2022.pdf>; [accessed September 2022]

<sup>17</sup> Naqvi, Abbas (2017): "Ricuit: Cutting Out the Middle Man." *Profit by Pakistan Today*, May 1, 2017.

<https://profit.pakistantoday.com.pk/2017/05/01/ricuit-cutting-out-the-conventional-middleman/>.

<sup>18</sup> Pakistan Institute of Development Economics. <https://pide.org.pk/wp-content/uploads/par-vol2i10-12-role-of-the-middle-man-and-neglected-aspects.pdf>.

<sup>19</sup> Bhutto, A.L., Bhutto, B., Chandio, R.A., Bhatti, I.P., Khooharo, A.A. (2015): A perspective on household dairy farming in district Thatta, Sindh Pakistan. *Pakistan J. Agric. Agric. Eng. Vet. Sci.* 31, 127–138.

<sup>20</sup> Government of Sindh, Social Assessment Report, Livestock & Fisheries Department

<sup>21</sup> Women are involved in up to 80 percent of the work of feeding and milking cattle and rural woman spend 5.5 hours per day on caring for livestock, but only 50 minutes on caring for her own children (FAO, n.d.a)

<sup>22</sup> Patil et al. (2018)

<sup>23</sup> Government of Sindh (2018): Sindh Agriculture Policy (2018-2030).

<sup>24</sup> World Bank. 2019. "Climate Smart Agriculture in Pakistan".

<sup>25</sup> Patil et al. (2018); FAO (2010-2011): *Women in agriculture: Closing the Gender Gap*. Rome, Italy; <https://www.fao.org/publications/sofa/2010-11/en/>

<sup>26</sup> Aurat Publication & Information Service Foundation (2018): Recommendation for Agriculture Department Socio-Economic Rights of Women Working in Agriculture in Punjab.



8. **Climate change constitutes a key threat to Pakistan's livestock and aquaculture sectors.** The Global Climate Risk Index ranks Pakistan among the top ten most climate vulnerable countries in the world. By the end of the century, annual mean temperature is projected to increase between 0.2–1.0°C and 4.0–5.5°C, depending on climate scenarios. Periodic heatwaves will intensify these effects and contribute to more severe, more frequent, and longer drought conditions. Livestock productivity is expected to suffer from reduced water availability, changes in fodder and feed quality and quantity, increased occurrence of vector-borne diseases and higher risk of emergence of new diseases, increased mortality, and loss of productivity, as well as the increased cost of feed, water, energy, and cooling systems. Lower productivity and increasing desertification of rangelands are expected, as well as a loss of infrastructure and animals due to increased occurrence of cyclones and floods. Short-term climate change impacts on aquaculture can include losses of production and infrastructure arising from extreme events such as floods, increased risks of diseases, parasites, and harmful algal blooms. Long-term impacts can affect the availability of wild seed as well as reduced precipitation leading to increasing competition for freshwater.<sup>27</sup> Floods are a principal hazard in Sindh as demonstrated by the devastating floods in 2010, 2011, 2012 and 2013 and most recently in September 2022. During the September 2022 floods, it is estimated that 1.4 million heads of ruminants (3 percent of the total), 7 million heads of poultry (4 percent of total), and over 80 percent of aquaculture ponds were lost in Sindh, resulting in total losses of US\$659 million.
9. **Pakistan's agriculture sector is also the single largest contributor to GHG emissions and livestock contributes 52 percent thereof.** Pakistan contributes less than one percent to global emissions, but it is growing fast at over three times the global rate, according to data from 1990–2018.<sup>28</sup> Agriculture contributed over 38 percent of national emissions in 2015, in the form of methane from unsustainable livestock and manure management practices (52 percent of agricultural emissions), nitrous oxide from agricultural soils and use of chemical fertilizers (46 percent), and rice cultivation and crop residue burning (seven percent).<sup>29</sup> In addition, livestock waste can pose local environmental threats such as water eutrophication, and overgrazing exacerbates land degradation and deforestation. Considering the increased population growth and demand for livestock products, the livestock herd is projected to increase at an estimated three percent per annum, which will increase absolute GHG emissions and aggravate environmental impacts. Aquaculture systems are currently mostly extensive with few production inputs and GHG emissions. Moving to intensive systems is expected to increase absolute emissions. In addition, a study conducted on water sources by Sindh's Environment Protection Agency showed that only 22 percent of fish farms complied with World Health Organization standards, which raises concerns that the growth of the sector could lead to an increase in pollution and unsustainable practices. Introducing sustainable and climate-smart practices in livestock and aquaculture production has the potential to improve climate resilience and increase productivity, which will in turn decrease livestock's GHG emissions intensity (i.e., quantity of GHG emissions per unit of output).

#### Relationship to CPF

10. **The project is consistent with the World Bank Group's Country Partnership Strategy (CPS) FY15-19 discussed by the Board on May 1, 2014 (Report No. 84645-PK),<sup>30</sup> the 2020 Systematic Country Diagnostic (SCD), and overall development frameworks.** The preparation of the new Country Partnership Framework (CPF) was deferred in FY21 due to the COVID-19 crisis and paused due to the recent unprecedented and catastrophic monsoon floods. A new CPF is expected to be delivered for the consideration of the Board of Directors in the second half of FY24. The focus areas and objectives of the CPS remain relevant and are reflected in the ongoing engagement in the country. The Livestock and Aquaculture Transformation Project (LIVAQUA) will contribute to CPS Outcome 2.2 – "Increased Productivity in

<sup>27</sup> FAO (2018): *Climate Change Impacts on Fisheries and Aquaculture*. Rome, Italy

<sup>28</sup> World Bank (2022): *Pakistan – Country Climate and Development Report*. Washington, DC.

<sup>29</sup> Ministry of Climate Change. Government of Pakistan (2018): Pakistan's second national communication on climate change. To the United Nations Framework Convention on Climate Change.

<sup>30</sup> World Bank Group (2014): *Islamic Republic of Pakistan: Country Partnership Strategy*, FY15-19 (Report No. 84645-PK) extended by the Performance and Learning Review (No. 113574) distributed to the Executive Directors on an absence-of-objection basis with a closing date of June 15, 2017.



Farms in Selected Irrigation Schemes” and CPS Outcome 3.3 – “Increased Resilience to Disasters in Targeted Regions” through activities under both Components 1 and 2. All project activities will contribute to CPS Result Area 3 on addressing inclusion and reducing inequalities for vulnerable groups. The project will also contribute to addressing the cross-cutting issue of climate resilience by supporting preparedness towards climate-related risks. The proposed project design is in line with the Pakistan Country Climate and Development Report (CCDR) in ensuring that promoted practices will support climate resilience and adaptation and reduce emissions or improve GHG emissions intensity as a co-benefit. LIVAQUA is consistent with the World Bank’s overall development frameworks as well – Resilience, Inclusion, Sustainability, and Efficiency (RISE) and Green, Resilient, and Inclusive Development (GRID) – in terms of addressing long-term development challenges and contributing to the post-pandemic building back better agenda on increasing climate resilience.

**11. The project is strongly aligned with the GoP’s development strategies.** At the national level, LIVAQUA is consistent with the National Agricultural Policy (2019-2024), which aims to ensure sector growth of 5 percent, including the livestock sector, and aims to increase agriculture public expenditures to at least 10 percent of total expenditures. The policy emphasizes the need to transition to innovations in the livestock sector to ensure sustainable natural resources use and improve regulatory and surveillance system for diseases and improve oversight and regulatory mechanisms such as certification schemes for quality control, labeling, and traceability to incentivize private sector investment. LIVAQUA is also aligned with GoP’s underlying strategy to achieve aquaculture expansion and to “increase national fish supply based on sustainable production and improved marketing of aquatic products”. A holistic Blue Economy Vision was adopted by the GoP in 2019, which offers a pathway for increasing sustainable seafood production and the aquaculture sector’s contribution to the country’s economic growth. Pakistan’s Nationally Determined Contributions 2021 (NDC) aim to promote strategies and targets to reduce emissions from agriculture, livestock, and land use change. LIVAQUA supports activities, which are recommended in Pakistan’s NDC, such as the development of livestock breeds, which are resistant to heat and water stress or promotion, storage and management of green manure, or adoption of good practices of natural grassland management in livestock production. At provincial level, LIVAQUA is in line with the Sindh Agriculture Policy (SAP) for 2018-2030, which aims to reduce poverty, make efficient use of natural resources, and enhance climate resilience. SAP promotes a range of interventions that can be supported by LIVAQUA, such as support to veterinary services, strengthening access to finance for the poor (e.g., through micro-credit programs), promoting technologies and practices that reduce emissions, or providing training for women and the youth for poultry rearing and aquaculture. LIVAQUA is also aligned with the Sindh Livestock and Fisheries Enterprise Development Policy draft, which aims at the transformation of the livestock and fisheries sector from conventional towards market-oriented farming by 2025. The Sindh Flood Emergency Rehabilitation Project (P179981) was launched following the 2022 floods to respond to urgent needs, including the restoration of the animal capital and production assets of small-scale livestock farmers. LIVAQUA will complement this support with a focus on priority investments for the sustainable development and resilience of the livestock and aquaculture sectors in Sindh in the medium and long term.

### C. Proposed Development Objective(s)

To support the competitive, inclusive, green, and resilient development of the livestock and aquaculture sectors in Sindh

#### Key Results (From PCN)

### 12. Key indicators to measure the achievement of the PDO would include:

- a. Competitive and inclusive: Increased productivity, value addition, and marketed volumes of small and medium livestock and aquaculture producers.
- b. Green: Contribution to reductions in GHG emissions intensity.



- c. Resilient: Small and medium livestock and aquaculture producers adopting resilience building practices.

#### D. Concept Description

##### 13. The project would have three components:

- a. Component 1: Strengthening the Enabling Environment for the Adoption of climate-smart BMPs
- b. Component 2: Promotion of Climate-Smart Production, Value Addition, and Inclusive Access to Markets through PAs
- c. Component 3: Project Management, Monitoring, and Learning

**14. Component 1: Strengthening the Enabling Environment for the Adoption of BMPs (Indicative budget: US\$60 million).** This component aims to facilitate the adoption of climate-smart BMPs by livestock<sup>31</sup> and aquaculture producers for an inclusive, climate-resilient, and sustainable sector development.<sup>32</sup> It will do so by (i) improving the policy, strategic, and regulatory frameworks for the sector, and improving and centralizing data collection and monitoring mechanisms for evidence-based decision making; and (ii) strengthening the delivery of essential public good knowledge, inputs, and services to livestock and aquaculture producers by the public and private sectors.

**15. Subcomponent 1.1: Improvement of Sector Policies, Strategies, and Regulations and of Evidence-based Decision Making** will provide technical assistance to the L&FD for the formulation and adoption of sector policies and action plans, as well as the establishment of inclusive policy dialogue and monitoring mechanisms. It will also support (i) the formulation or update of specific sector strategies and regulations (i.e., breeding strategies, animal health strategies and regulations, disease surveillance and control plans, ecosystem-based approach implementation and environmental impact reduction strategies, aquaculture post-harvest strategy, and so on);<sup>33</sup> and (ii) the preparation of contingency plans against priority diseases, as well as for climatic emergencies.

**16.** This sub-component will also strengthen the capacity of institutions in the livestock and aquaculture sectors to collect and centralize data for sector-wide data analysis, monitoring, and evidence-based decision making. This will include in particular (i) strengthening disease reporting systems; (ii) creating databases and performance recording systems for breeding stock; (iii) establishing georeferenced sector databases and dashboards, which allow to apply integrated zone management plans and to identify climate risks and vulnerabilities, (iv) creating data and knowledge sharing system; and (v) strengthening the L&FD's capacity for data analysis.

**17. Subcomponent 1.2: Strengthening the Delivery of Knowledge, Inputs, and Services** will support public and private institutions providing key knowledge, inputs, and services to livestock and aquaculture producers, such as (i) animal health services; (ii) breeding and genetic improvement services; (iii) extension and advisory services (e.g., Farmers Field Schools, Pond Schools, village demonstration units); (iv) research and development and technology transfers; and (v) certification and quality control services. This support will entail investments in public infrastructure (i.e., livestock and aquaculture public institutions), equipment (e.g., laboratory equipment, climate smart equipment),

<sup>31</sup> The definition of the livestock sector used for the purpose of this document is the FAO definition used by most of international organizations, which includes all terrestrial domestic animals including ruminants, as well as monogastric animals including poultry.

<sup>32</sup> Climate-smart practices for livestock have the potential to improve productivity and climate resilience, and improved GHG emissions intensity. The potential to improve emissions intensity will be assessed during project preparation using the tool Global Livestock Environmental Assessment Model – interactive (GLEAM-i). Following climate-smart practices for Component 1 and 2 will be explored during project preparation, such as (i) improving access to adequate nutrition and feed to increase productivity and reduce emissions generated by enteric fermentation; (ii) introducing new breeds to reduce morbidity and vulnerability to drought and diseases and enhance productivity; (iii) improving animal health services to reduce morbidity and early mortality of animals and contribute to increasing productivity; (iv) integrating crop and livestock systems to optimize the use of crop residues and legumes for feed, manure storage and management practices to promote biofertilization. Livestock manure can be converted into biogas; (v) improving fodder crop and pasture management (e.g., improved fodder cultivation, rotational grazing, drought-tolerant forage seeds); (vi) VCs and aquaculture systems can be supported with energy-efficient cooling logistics, and climate-resilient market infrastructure to support a reduction of FLW.

<sup>33</sup> This will also ensure that climate risks are addressed, and resilience building practices and achievement of climate mitigation co-benefits are considered in the review and formulation of targeted policies.



inputs (i.e., vaccines for vaccination campaigns), and capacity building of staff (e.g., on improved equipment utilization). Special large-scale operations such as vaccination campaigns against transboundary animal diseases and the distribution of improved genetic material, as well as awareness campaigns will also be supported. The delegation of essential services to private sector service providers (e.g., vaccination campaigns, surveillance) will be encouraged under the leadership of public institutions.

- 18. Component 2: Promotion of Climate-Smart Production, Value Addition, and Inclusive Access to Markets through PAs (Indicative budget: US\$55 million).** This component will seek to support growth-oriented farmers<sup>34</sup> through a PA approach to (i) intensify and add value to their production; and (ii) establish and/or upgrade their market linkages with off-takers in a market-driven, profitable, and sustainable way. Producers and PGs will receive both TA from local service providers and direct financial support, including support to strengthen their climate resilience and potential for climate mitigation.
- 19.** The project will focus on four subsectors with the greatest potential for competitive, inclusive, sustainable, and resilient development, namely dairy, red meat from large ruminants, red meat from small ruminants, and aquaculture. To mitigate the risks of elite capture and to promote inclusion, this component will focus its support on small and medium farmers. Project activities are designed to best suit the needs of small and medium farmers by providing dedicated support to the mobilization and market integration of PGs. Additional measures to mitigate the risk of elite capture (selection criteria and control mechanisms) will be explored during project preparation.
- 20.** Subcomponent 2.1: Capacity Building and Development of Horizontal and Vertical Alliances aims to (i) strengthen the technical and business capacities of growth-oriented small and medium producers; and (ii) establish/upgrade market linkages between these producers organized in PGs and buyers following a PA approach.<sup>35</sup> This subcomponent will finance goods and services needed to build the capacity of small and medium producers, establish PAs, and develop BPs as part of PAs.
- 21.** Subcomponent 2.2 Improving the Market Integration of PGs for Increased Climate-Smart Production and Value Addition aims to (a) increase productivity and production in a climate-smart way; and (b) improve market integration and value addition. Increased value addition is expected to lead to reduced FLW, which, combined with productivity increases, will lead to reduced GHG emissions intensity. This subcomponent will provide matching grants for investments in TA, productive assets, and inputs.
- 22.** Financial support will be awarded based on a competitive process. Applicants will have to meet a set of eligibility criteria to present their BP, which will then be assessed based on additional relevant prioritization criteria.<sup>36</sup> Financial support to PGs will be provided only for investments needed to meet the market specifications agreed upon with the buyer as part of the PA. In addition, the design of the matching grant financing mechanism will include dedicated measures to mitigate the risk of crowding out commercial financing, especially from micro-finance providers. TA will systematically be provided to support the implementation of BPs, notably to build entrepreneurship capacities and promote the proper adoption of climate-smart technologies and value-addition practices thereby maximizing the sustainability of investments.
- 23. Component 3: Project Management, Implementation, Supervision and Monitoring, Communication, Dissemination, and Learning (Indicative budget: US\$10 Million).** This component includes two subcomponents: (i) Subcomponent

<sup>34</sup> Growth-oriented small- and medium-scale farmers are those interested in increasing the commercialization of marketable surplus. Global experience shows that market integration support tends to be most successful when targeting such types of farmers.

<sup>35</sup> Growth-oriented producers will be mobilized to form PGs (a) in response to business opportunities (i.e., a concrete buyer with concrete demand for specific products) they have identified with or without the support of the project; and (b) based on their willingness to make collective investments to increase and add value to their production.

<sup>36</sup> Before approval, BPs will need to demonstrate that they (a) meet market requirements agreed upon with the buyer and demonstrate economic and financial viability; (b) do so in a climate-smart way, consider climate risk and resilience building and mitigation measures; and (c) meet relevant environmental and social screening criteria.



3.1: Project Management, Monitoring, and Learning, which will support the overall management, implementation, and supervision of project interventions, capacity building including third-party validation, as well as monitoring and continuous learning throughout the life of the project; and (ii) Subcomponent 3.2: Contingent Emergency Response Component (CERC). This US\$0 CERC will allow for rapid reallocation of project proceeds in the event of a natural or man-made disaster or crisis that has caused or is likely to imminently cause a major adverse socio-economic impact.

### Environment and Social

- 24. The environmental risks of the project are assessed as Substantial.** Overall, the project will have positive environmental benefits through introducing sustainable and climate smart practices in livestock and aquaculture production resulting in reduction of GHG emissions. The main environmental risks of the project are associated with civil works to support rehabilitation and reconstruction of infrastructure (office building, laboratories etc.) and aquaculture activities to be supported under the project. The civil works related anticipated environmental risks are related to localized air and noise pollution, generation of wastewater and disposal of solid waste generation with most of the anticipated impacts are reversible small scale and likely to occur only during construction. There are environmental pollution and CHS/OHS risks associated with use and disposal of vaccines/syringes procured by the Projects. The aquaculture interventions to be supported under the project could have potential environmental impacts related to water pollution and waste disposal of aquaculture activities, risks associated with intentional or accidental introduction of invasive species and risks of water scarcity and water use competition among different water users. The environmental impacts of aquaculture investments can also lead to degradation of land if interventions are planned in already stressed critical habitats like wetlands and mangroves forests of Sindh. The project also has built in design measures including on-farm adoption of climate-smart best management practices (BMPs), which will in turn lead to increased resilience, increased productivity, and to reductions of GHG emissions intensity and reduce the environmental impacts of the project, however at concept stage the exact location, design and scale of activities are not known. Considering above environmental risks associated with the project and capacity constraints, the environmental risk at concept stage is assessed as substantial.
- 25. The social risks of the project are assessed as Moderate.** There are positive livelihood impacts associated with improved breeds, disease control and enhanced knowledge of producers on livestock and aquaculture management. The primary social risk is associated with targeting and selection of beneficiaries for productive alliances and for producer groups, especially in provision of technical and financial assistance to these groups. Other risks involve inequitable distribution of project benefits/resources, loss of livelihoods due to inadequate administration of vaccines and/or misinterpreted practice of feeding and breeding (and all other associated husbandry practices), labor and OHS risks, CHS risks associated with malpractices in livestock/aquaculture management (inappropriate use of vaccines, feeds, improper disposal of waste, etc.) and possible occurrence of GBV, SEA, and SH. This risk is partially mitigated within the Project design by focusing on small and medium farmers and will be further mitigated during preparation stage by the development of selection criteria and control mechanisms.
- 26. The Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) Risks of the project are assessed as Low.** At the PCN stage, using the Risk Rating Tools, SH risks are assessed as low Risk of GBV, SEA, and SH is assessed low as per GBV/SEA tool, but will be further investigated during the preparation stage. All of these risks will be mitigated through the preparation of ESMF, and any additional management plans required as per risk magnitude.



Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No
Summary of Screening of Environmental and Social Risks and Impacts	

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**APPROVAL**

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**The World Bank**

Sindh Livestock and Aquaculture Sectors Transformation Project (P179003)

**Approved By**

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