Public Disclosure Authorized

Public Disclosure Authorized



# Program Information Documents (PID)

Appraisal Stage | Date Prepared/Updated: 07-Dec-2022 | Report No: PIDA273632

## BASIC INFORMATION

### A. Basic Program Data

| Country | Project ID | Program Name | Parent Project ID (if any) |
|---|---|---|---|
| China | P178907 | China Green Agricultural and Rural Revitalization Program for Results (Hubei and Hunan) | |
| **Region** | **Estimated Appraisal Date** | **Estimated Board Date** | **Practice Area (Lead)** |
| EAST ASIA AND PACIFIC | 04-Jan-2023 | 28-Mar-2023 | Agriculture and Food |
| **Financing Instrument** | **Borrower(s)** | **Implementing Agency** | |
| Program-for-Results Financing | People's Republic of China | Hubei Provincial Rural Revitalization Administration, Hunan Provincial Department of Agriculture and Rural Affairs, National Rural Revitalization Administration | |

Proposed Program Development Objective(s)

To strengthen institutional capacity for implementing the Rural Revitalization Program and enhancing adoption of environmentally-sustainable agricultural practices and rural infrastructure development in selected areas of Hubei and Hunan.

## COST & FINANCING

### SUMMARY (USD Millions)

| | |
|---|---|
| **Government program Cost** | 4,100.00 |
| **Total Operation Cost** | 350.00 |
| Total Program Cost | 350.00 |
| **Total Financing** | 350.00 |
| **Financing Gap** | 0.00 |

### FINANCING (USD Millions)

| | |
|---|---|
| **Total World Bank Group Financing** | 350.00 |
| World Bank Lending | 350.00 |

Decision

The review did authorize the team to appraise and negotiate

## B. Introduction and Context

### Country Context

1. **After 40 years of unprecedented economic growth, China eradicated absolute poverty in 2020, 10 years ahead of the United Nations' Sustainable Development Goal target of 2030.** According to the last accessible household survey data from 2018, the share of people living below the extreme international poverty line of USD 1.90 per day had fallen below 1 percent. Despite this remarkable achievement, about 250 million Chinese remain below the USD 5.50 per day poverty line recommended for upper-middle-income countries (MICs), of which two-thirds reside in rural areas. Approximately 40 percent of China's population (or 570 million people) still lives in rural areas, and many are vulnerable to falling back into poverty in case of an economic shock or natural disasters, such as floods and droughts.

2. **China's rural economy is challenged by natural and human resource constraints, along with institutional weaknesses that diminish the effectiveness of government support programs.** China has limited natural resource endowments. For example, China has only 7 percent of global freshwater resources and 9 percent of the world's total arable land.[1] Small farm sizes (93 percent of farms are less than 1 hectare) and aging farmers (averaging about 54 years) are constraining agricultural modernization. Underinvestment in agriculture research and development (R&D),[2] extension and advisory services, storage and cold chains, logistics, and vocational skills and talent development adversely affect labor and land productivity. Given these constraints, rural incomes continue to significantly lag behind urban incomes despite considerable government investments in rural roads, drinking water supply, and irrigation and drainage systems. Limited institutional and governance capacity at the subnational level (e.g., program budgeting and expenditure tracking, monitoring and evaluation [M&E], and verification and reporting of results) and weak farmer organizations (e.g., farmer cooperatives and water user associations [WUAs]) continue to hamper the efficient delivery of rural infrastructure and public services, as well as developing viable agro-food enterprises.

3. **China's past rapid agricultural growth has come at increasing environmental costs.** It is estimated that the cost of environmental pollution and resource (especially land and water) degradation in China amounts to about 9 percent of its gross domestic product (GDP), 10 times higher than corresponding levels in Korea and Japan.[3,4] The 2022 Environmental Performance Index (EPI)[5] report ranked China 160th out of 180 countries for environmental performance across 24 indicators in 10 categories: air quality, water and sanitation, heavy metals, biodiversity and habitat, forests, fisheries, climate, energy, water resources, and agriculture. The EPI shows that China lags behind many other upper MICs with comparable per capita income, such as Brazil, Mexico, Russia, and Turkey.

4. **China's transition from its current resource-intensive economy to a green economy started with a greener growth strategy in its 13th Five Year Plan (2015-2020),** emphasizing quality over quantity of growth and the need for

[1] FAO (Food and Agriculture Organization of the United Nations). 2022. "FAOSTAT Statistical Database." https://www.fao.org/faostat/en/ .

[2] The ratio of agricultural R&D expenditures to agricultural GDP increased from 0.14 percent in 2002 to 0.46 percent in 2018, but that is still significantly lower than that of developed countries, which average from 1.0 percent to 2.0 percent.

[3] World Bank Group. 2010. Cost of Pollution in China: Economic Estimates of Physical Damages (English). Washington, D.C: World Bank Group. http://documents.worldbank.org/curated/en/782171468027560055/Cost-of-pollution-in-China-economic-estimates-of-physical-damages

4 World Bank and Development Research Center of the State Council, People's Republic of China. 2013. China 2030: Building a Modern, Harmonious, and Creative Society. Washington, D.C.: World Bank. https://openknowledge.worldbank.org/handle/10986/12925

[5] The 2018 Environmental Performance Index (EPI) ranks 180 countries on 24 performance indicators across 10 issue categories covering environmental health and ecosystem vitality. These metrics provide a gauge at a national scale of how close countries are to established environmental policy goals.

green development. This greener growth strategy is being pursued through productivity and innovation-driven development; rebalancing towards consumption and services; improving equitable access to basic public services; and adopting stringent environmental regulations. Through actions in a range of sectors, China has started to slow greenhouse gas (GHG) emissions growth, reduce air and water pollution, improve resource efficiency of the economy, and enhance land management. But more needs to be done, including in the agriculture and rural development sector, which is highly vulnerable to climate change and dependent on natural resources, especially land and water.

5. **To promote green growth and sustainably address the above agricultural and rural development challenges, China adopted the National Rural Revitalization Program (RRP, 2018–2035) in 2017.** The No. 1 Central Documents in 2018, 2019, 2020, 2021, and 2022 all focused on rural revitalization framed around the three rurals: *agriculture, rural areas, and farmers*. The RRP is being implemented through a series of five-year Rural Revitalization Strategic Plans (RRS), and these serve as the basis of the proposed Green Agricultural and Rural Revitalization Program for Results (GARR PforR) (Hubei and Hunan) (hence forth referred to as GARR PforR). The RRP objectives and milestones have been further elaborated in annual policy documents[6] and in the *14th Five-Year Plan (FYP, 2021–2025) for the National Green Development of Agriculture* [7] and the *14th FYP on Municipal Solid Waste Separation and Treatment Facilities Development (2021–2025).*[8] The Rural Revitalization Promotion Law (RRPL) of April 29, 2021, provides the legal framework for implementing the RRP through phased five-year RRS plans.

6. **Despite the greater prominence given to green economic development in the RRP, in practice, the government's rural revitalization and greening objectives are not fully aligned.** Central and provincial government transfers targeting rural revitalization do not consider green, low-carbon, and sustainable agriculture and rural development as their primary objectives. Instead, the bulk of agricultural support policy measures (e.g., input subsidies, guaranteed purchase schemes, subsidized credit, etc.) are still tied to farmland area, production volumes, and yields without considering their environmental costs and benefits. Critical funding gaps remain for some rural infrastructure and public services, especially rural wastewater and solid waste management, and the sustainable management of the natural capital, such as agricultural landscapes and ecosystems. While in the European Union (EU) 40 percent of agricultural support policies are now related to green agricultural development, in China, this proportion is estimated to be only 5 percent.[9]

7. **To achieve the specific targets for green, low-carbon, and sustainable agriculture and rural development objectives, there is an urgent need to develop new governance frameworks necessary for mobilizing fiscal resources (and expenditure tracking) that can be transferred to counties**. The proposed GARR PforR (Hubei and Hunan) provides incentives for strengthening the central and provincial levels' institutional delivery mechanisms, with a sharper focus on the delivery of results related to green, low-carbon, and sustainable development of agriculture; management of agricultural ecosystems; and delivery of rural infrastructure and public services, while keeping the focus on poor and vulnerable households in Hubei and Hunan provinces. Thus, it promotes the greening of agricultural production and rural revitalization and provides additional incentives by leveraging World Bank financing to enhance the efficiency and impact of RRS implementation.

8. **The proposed GARR PforR (Hubei and Hunan) complements the Green Agricultural and Rural Revitalization Program PforR for the Guangxi Zhuang Autonomous Region ("Guangxi") and Guizhou province (GARR PforR, Guangxi and Guizhou) approved by the Bank in March 2022 to support implementation of the national RRP.** Building on the

[6] The No. 1 Document issued by the Central Committee of the Communist Party of China and the State Council in 2018, 2019, 2020, 2021, and 2022 focused on green agricultural development, market reforms, and modernization of the rural economy.
[7] A joint notice of the Ministry of Agriculture and Rural Affairs (MARA), National Development and Reform Commission (NDRC), Ministry of Science and Technology (MOST), Ministry of Natural Resources (MNR), Ministry of Ecology and Environment (MEE), and National Forestry and Grassland Administration (NFGA) (Nong Gui Fa [2021] No. 8) issued in August 2021.
[8] Issued jointly by the Ministry of Housing, Urban, and Rural Development (MOHURD) and the NDRC.
[9] World Bank. 2022. Toward a Greener China: A Review of Recent Agricultural Support Policies and Public Expenditures. © World Bank.

GARR PforR Guangxi and Guizhou, the proposed GARR PforR (Hubei and Hunan) adds a central component supporting the National Rural Revitalization Administration (NRRA) under the Ministry of Agriculture and Rural Affairs to enhance the overall central governance framework towards a greener agriculture and rural development. The NRRA will also coordinate the implementation of the two GARR PforRs, and facilitate national and global knowledge exchange and the sharing and scale up of good practices developed under the two GARR PforRs. In addition, it expands the geographic coverage to Hubei and Hunan provinces **in the mid-reaches of the Yangtze River, which share subtropical monsoon climatic conditions** to apply green agricultural and rural revitalization approaches under different agro-ecological and socio-economic conditions, compared to the mountainous Guangxi and Guizhou settings.

9. **Hubei and Hunan provinces were competitively selected based on technical proposals submitted to the National Development and Reform Commission (NDRC) and criteria agreed with the Bank.** The two provinces are among the largest agricultural producers (including rice and livestock and poultry which generate large quantities of GHG emissions such as $CH_4$ and $N_2O$), using large quantities of agricultural inputs and natural resources (land and water), and facing severe soil and water pollution challenges. Together, they contribute significantly to China's agricultural environmental footprint, through: (1) excessive and improper use of chemical fertilizers, (2) poor management of livestock and poultry manure, (3) poor management of aquaculture farms and wastewater, and (4) degradation of agricultural ecosystems. Hubei and Hunan also have relatively large rural populations--about 37.10 percent in Hubei and 40.28 percent in Hunan, most of whom are engaged in agriculture, albeit with inadequate access to rural infrastructure and public services.

## Sectoral and Institutional Context

### *Green Agricultural Development*

10. **China's agricultural sector is one of the largest in the world**. In 2021, the country's agricultural GDP amounted to USD 1.37 trillion (constant 2010 USD), equivalent to 7.3 percent of the national GDP (USD 17.7 trillion). Over the past 40 years, China's inflation-adjusted average annual growth rate of agricultural output value and agricultural GDP were 5.3 percent and 4.5 percent, respectively; driven mainly by the growth in total factor productivity, the introduction of new technologies, and large producer subsidies, mostly for rice, wheat, and maize production. China has now surpassed the European Union and the United States (US) in terms of total agricultural support[10], which has also led to the excessive use of chemical fertilizers, resulting in significant GHG emissions, pollution and environmental degradation. Despite its limited natural resource endowment, China produces about 18 percent of the world's cereal grains, 29 percent of the world's meat, and 50 percent of the world's vegetables.[11] China also plays an important role in international agricultural trade. The country is the largest importer of soybeans, maize, beef, and aquatic products; and is the largest exporter of nitrogen fertilizer. As a large producer, consumer, and trader, China's agricultural producer support and international trade policies have significant global implications in terms of food security and environmental footprint.

11. **China is the largest emitter of greenhouse gases (GHGs), both as a country and from the agriculture sector, accounting for 27 of global emissions and 13 percent of total agriculture emissions.**[12] While agricultural GHG emissions are overshadowed by those of other sectors, China's agricultural sector emits about as much as the entire economy of Canada. China's agricultural sector (i.e., including agriculture, land use, land-use change, and forestry [LULUCF]),

[10] The Ministry of Finance (MOF) and Ministry of Agriculture and Rural Affairs (MARA) consolidated three subsidies—the direct subsidy for grain growers, purchasing improved crop varieties, and the general subsidies for agricultural inputs--into an agricultural support and protection subsidy.
[11] FAO (Food and Agriculture Organization of the United Nations). 2020. FAOSTAT Statistical Database. https://www.fao.org/faostat/en/ .
[12] The main agricultural and land use change GHG emissions are carbon dioxide ($CO_2$), methane ($CH_4$), and nitrous oxide ($N_2O$).

accounted for 6 percent of China's GHGs, or about 667 million tons of carbon dioxide equivalent ($CO_2e$), in 2019.[13,14] Of note, this footprint excludes indirect emissions, like those relating to fertilizer and pesticide production and on-farm energy-related emissions. It is also based on what China produces domestically, not what it consumes. The sector's footprint would be larger if it included the impacts of feed, meat, and dairy imports on the emissions of exporting countries, especially those experiencing tropical deforestation and landscape degradation like Brazil. Agriculture's emissions are ranked fourth nationally, after electricity and heating, industry, and transportation.

12. **Overall, livestock, synthetic chemical fertilizer use, and rice farming are the largest sources of agricultural GHG emissions in China, in that order.** On-farm energy use comes next if its emissions are counted in the sector total. Breaking down agriculture sector emissions by type, methane ($CH_4$) accounts for the highest share at 46 percent, followed by nitrous oxide ($N_2O$ ) at 39 percent and carbon dioxide (CO2) at 15 percent. Methane is 81 times more potent and $N_2O$ is 273 more potent than $CO_2$ in trapping heat in the atmosphere. Encouragingly, agricultural GHGs may have already peaked in China, overall. After increasing for several decades, China's farm-related GHGs declined between 2016 and 2019, consistent with the decline in chemical fertilizer use. Many studies have documented ample potential to cut fertilizer applications by up to 30–60 percent without compromising yields with the added benefit of reducing farmers' input costs. According to the Food and Agriculture and Organization (FAO) of the United Nations statistics (2021), GHGs from agricultural land peaked at 842 million tons of CO2e in 2016. Between then and 2019, they declined by 6 percent per year, returning approximately to their 2007 levels. However, climate models estimate that, without serious national mitigation efforts, agricultural GHG emissions in China will rise to 1,350 million metric tons of carbon dioxide equivalent (MtCO2e) per year by 2050, driven mainly by increased livestock production in response to the growing demand for animal-based protein (due to increasing incomes)—especially beef, pork, and poultry. The sector also recorded a decline in carbon intensity. Meanwhile, the agricultural sector's indirect emissions have been a source of continued emissions growth; and emissions from domestic food consumption have outpaced emissions from domestic food production. Going forward, mitigating China's agricultural GHG emissions requires deploying a food-system approach (i.e., reducing emissions along the value chains), and adopting climate-smart agricultural practices, which increase productivity, build resilience to climate change, and reduce GHG emissions.

13. **China's reductions of potent methane (CH4) and nitrous oxide (N2O) are considered as critical for mitigating near-term warming, while structural changes to reduce fossil fuel dependence are undertaken.**[15] At the United Nations Framework Convention on Climate Change (UNFCCC) Conference of Parties (COP) 27 in November 2022, the Chinese government announced its plan to curb methane emissions from energy, agriculture and waste.[16] Methane accounts for about half of the net rise in global average temperature since the pre-industrial era. Thus, rapidly reducing methane emissions from energy, agriculture, and waste is regarded as the single most effective strategy to keep the goal of limiting global warming to 1.5˚C within reach, while yielding co-benefits including improving public health and agricultural productivity. The commitment is inclusive of agriculture where sub-sectors such as rice and livestock are major contributors to methane emissions (e.g., manure management at 9 percent and enteric fermentation at 27 percent). The COP 27 participating countries also committed to moving towards using the highest tier of the Intergovernmental Panel on Climate Change (IPCC) good practice inventory methodologies (e.g., monitoring, reporting and verification [MRV]). But many participating countries (67 percent), including China reported that MRV methodologies to track mitigation

[13] FAO (Food and Agriculture Organization of the United Nations). 2021. "FAOSTAT Statistical Database." https://www.fao.org/faostat/en/.
[14] Climate Watch. 2020. "Historical GHG Emissions." https://www.climatewatchdata.org/ghg-emissions?breakBy=sector&chartType=percentage&end_year=2018&gases=ch4&regions=CHN&sectors=total-excluding-lucf&source=CAIT&start_year=1990.
[15] In that respect, one noteworthy trend is that if agricultural emissions have long been dominated by methane (and continue to be), nitrous oxide emissions have risen faster, and fallen more slowly in recent years.
[16] https://www.reuters.com/business/cop/china-announces-plan-curb-rising-methane-emissions-challenges-await-2022-11-09/

measures are either not planned or not yet established. This presents an opportunity for the GARR PforR to support China to develop its MRV methodologies.

14. **Agriculture is China's main non-point source (NPS) of water pollution.** As of 2020, the government deemed over 86 percent of China's monitored groundwater sources unfit for human contact.[17] In comparison, China's surface waters are in far better condition and generally improving. In 2020, six of seven monitored river basins met national targets, and the worst quality waters have almost been eliminated. And yet, nearly 17 percent of surface water was still considered unsafe for human contact. Agriculture remains the leading source of nutrient pollution. In 2017, the national pollution census showed that a decade after the first survey, agriculture remained responsible for more nitrogen and phosphorus pollution than other sources, like industry. The sector accounted for nearly half (47 percent) of national nitrogen pollution and over two-thirds (67 percent) of phosphorus pollution.[18] Agricultural sources of excess nutrients are primarily farmed animals' feces (including those generated by aquaculture operations), chemical fertilizer, and to a lesser extent, aquaculture feed and detritus.

15. **China's agriculture is also highly vulnerable to climate change.** The country faces significant climate change-related disaster risks and is ranked 87th out of 193 countries by the 2023 Inform Risk Index[19]. This ranking is driven strongly by the exposure component of risk. China has very high exposure to flooding (ranked jointly 13$^{th}$), including, riverine, flash, and coastal, and very high exposure to tropical cyclones and their associated hazards (ranked 6$^{th}$). Projected precipitation trends show a likely reduction in rainfall across the central regions, such as in Hubei and Hunan provinces, but an increase in intensity for extreme rainfall events. The majority of China's provinces are at a high flood risk. Flooding is the largest driver of average annual losses to disaster, United Nations International Strategy for Disaster Reduction Secretariat (UNISDR) estimate flood impacts at around USD 19 billion per year. Storm surge impacts also represent a major risk, costing an estimated USD 5 billion per year.[20] The nature of this risk varies by region, but China's central provinces, such as Hunan and Hubei experience the highest risk in terms of vulnerable populations and agricultural vulnerability.[21]

16. **The increasing severity and frequency of extreme weather events (especially floods and droughts), rising sea levels, destruction of ecosystems, and loss of biodiversity will significantly weaken China's agricultural productive capacity.** While all of China will experience warming trends, temperature increases in China are expected to be most severe in its central (including Hubei and Hunan provinces) and northern regions. An increase in the frequency and intensity of heatwaves has already been documented in recent decades, and this trend is expected to continue and lead to more frequent droughts. Two primary types of drought may affect China, meteorological (usually associated with a precipitation deficit) and hydrological (usually associated with a deficit in surface and subsurface water flow, potentially originating in the region's wider river basins). As a result, climate change will influence food production via direct and indirect effects on crop growth processes. Direct effects include alterations to carbon dioxide availability, precipitation, and temperatures. Indirect effects include impacts on water resource availability and seasonality, soil organic matter transformation, soil erosion, changes in pest and disease profiles, the arrival of invasive species, and a decline in arable areas due to the submergence of coastal lands and desertification. Across China, seasonal droughts driven by climate

[17] MEE (Ministry of Ecology and Environment). 2021. *Report on the State of the Ecology and Environment in China 2020*. Beijing: MEE.
[18] Gao, Shangbin. 2021. *Green Agricultural Development in China*. Unpublished background report prepared for the World Bank.
[19] European Commission (2023). INFORM Index for Risk Management. China Country Profile.
URL: https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Risk-Profile
[20] UNISDR (2014). Basic Country Statistics and Indicators: China.
URL: https://www.preventionweb.net/countries/chn/data/
[21] Huang, D., Zhang, R., Huo, Z., Mao, F., E, Y., & Zheng, W. (2012). An assessment of multidimensional flood vulnerability at the provincial scale in China based on the DEA method. Natural Hazards, 64(2), 1575–1586.
URL: https://link.springer.com/ article/10.1007%2Fs11069-012-0323-1

change could lead to substantial crop yield losses of nearly 8 percent by 2030 for its three primary crops (rice, wheat and corn). Corn yields are likely to suffer the greatest yield losses with projected drop of nearly 20 percent of total production, followed by wheat with a 4 percent decline, and rice decreasing 1.5 percent.[22]

17. **In China, the adoption of green technologies and practices by farmers and cooperatives is hampered by perverse incentives, commercial risks, and insufficient technical and advisory services.** Chinese farmers face these key challenges: (1) input-oriented subsidies encourage the overuse of more harmful chemical agricultural inputs, especially fertilizer and pesticide, in crop production; (2) climate-smart agricultural technologies and practices, including the use of formula fertilizer, fertigation, organic and green manure, and livestock and poultry manure treatment and recycling facilities require upfront investments, but risk-averse and credit-constrained farmers are reluctant to adopt them; (3) farmers need extensive technical training and capacity building to fully master the details of green agricultural technologies and practices, but local institutional capacity to deliver such knowledge is limited; and (4) farmers find it difficult to recoup the costs of producing green agricultural products unless these are certified as green or organic, or registered as geographical indication (GI), and are sold in niche markets, where consumers are willing to pay premium prices.

***Rural Revitalization***

18. **After achieving its goal of eliminating extreme poverty in 2020, China is transitioning from its Poverty Reduction Program into the Rural Revitalization Program.** Under the Poverty Reduction Program, China achieved its goal of universal coverage of paved rural roads, drinking water supply, and rural housing—dubbed the *three guarantees*. The RRP focuses on increasing access to other rural infrastructure and public services, especially solid waste and wastewater services, to improve the rural living environment. Following the guidelines issued by the State Council in 2019, improving these types of rural infrastructure at the village level is being promoted through the development of spatial integrated village development plans (IVDPs), which represent rural service delivery compacts, and once approved by the relevant authorities they are binding.

19. **The NRRA, as a central agency mandated to coordinate the implementation of the RRP needs accurate data and information to monitor and evaluate the performance of RRP implementation at subnational level,** and to inform the policy decision-making. The NRRA will provide technical guidance and financial incentives to subnational governments to promote the adoption of green agriculture practices, deliver low-carbon and climate-resilient rural infrastructure and public services, and facilitate peer learning among provinces as well as scaling up good practices. The existing national information technology (IT) platform, which was developed by the State Council Leading Group Office of Poverty Alleviation and Development (LGOPAD) about ten years ago, for managing the poverty reduction program was found to be insufficient to support the RRP implementation both in terms of sectoral scope and geographic coverage. Thus, the national IT platform will be expanded under the proposed GARR PforR to include all types of rural infrastructure and public services in its database, as well as IVDPs. In addition, the central government fiscal transfers to finance the RRP activities at subnational level are currently based on inputs. This presents an opportunity for the NRRA to incentivize county governments to improve performance through program-based and results-oriented transfers. Therefore, green tagging of program-budgets and expenditures system will be established under the GARR PforR to ensure that central government transfers are made against verifiable green agriculture and rural infrastructure development results.

20. **China's rural solid waste collection, transfer, and treatment are much below the levels in urban areas.** In 2019, waste generation was estimated at 0.76 kilograms per capita per day (kg/capita/day) in rural areas. But up to half of the

[22] Tebaldi, C., & Lobell, D. (2018). Differences, or lack thereof, in wheat and maize yields under three low-warming scenarios. Environmental Research Letters: 13: 065001. URL: https://iopscience.iop.org/article/10.1088/1748-9326/aaba48

rural solid waste generated may not be disposed of safely, thus becoming a major environmental pollution source.[23] While urban waste collection and treatment is almost universal, in 2017, it was estimated that only 47 percent of rural waste was disposed of according to the existing national standards.[24] In 2018, the Ministry of Agriculture and Rural Affairs (MARA) reported that rural solid waste was not properly managed in at least a quarter of China's administrative villages, where open dumping was normal and littering was ubiquitous.[25] China is currently piloting the separation of rural solid waste at source into four categories: organics, recyclables, hazardous, and residuals. In rural areas, kitchen (organic) waste is mostly used by households as animal feed, and recyclables are partially collected outside the public service (e.g., by the informal and private sectors) due to low-profit margins and long transportation distances. But residual and hazardous waste often remain uncollected, littered into the environment, placed at informal dumpsites, or burned. Separating rural solid waste at the source facilitates the collection and recycling of agricultural plastic (e.g., plastic mulch film residues, pesticide containers, and chemical fertilizer packages).

21. **Despite China's rural solid waste policy framework being tightened, fragmented institutional authority and responsibilities for rural solid waste services impacts its implementation.** The Ministry of Housing, Urban and Rural Development (MOHURD) is responsible for planning, construction, and operations and maintenance (O&M) of solid waste management facilities; service delivery; and data and information management. The Market and Supply Cooperative, a nationwide network, handles resource recycling in rural areas, while MARA organizes the treatment of agricultural waste, including agricultural mulch, plastic film, and plastic packaging materials. Environmental monitoring of and compliance with solid waste management and resource recycling facilities are the responsibility of the Ministry of Ecology and Environment (MEE). Since several institutions have different mandates, an effective institutional coordination framework is needed to better manage rural solid waste in China. Addressing the low institutional capacity for local infrastructure planning and life-cycle operation and maintenance are imperatives to closing the urban-rural infrastructure and public services gap in China.

22. **Inadequate rural wastewater collection, treatment, and recycling infrastructure and services are major concerns in China.** In 2018, China had 2.45 million villages with a total population of 580 million.[26] Simple pit latrines and flush toilets connected to septic tanks are commonly used in rural areas. But many villagers still face poor sanitation and hygiene conditions because of inadequate, outdated, and/or faulty sanitary facilities. The sewage generated in these villages daily is approximately 17.6 million cubic meters ($m^3$), but the daily treatment capacity is only about 494,700 $m^3$, so only 2.8 percent of wastewater is treated. Currently, only 25 percent of the rural wastewater is properly treated and recycled in Hubei and Hunan provinces. But under the 14th FYP, the two provinces' target is to increase the overall treatment and recycling rate to 35 percent, and in demonstration villages under the program to 85 percent. The untreated wastewater discharged into the environment contribute to GHG emissions ($CH_4$ and $N_2O$) and cause various health risks because of the higher content of chemical oxygen demand (COD), total nitrogen (TN), total phosphorus (TP), and ammoniacal nitrogen ($NH_3$-N)[27] in the drinking water sources.

23. **Most of the rural infrastructure are prone to climate change-related disasters, especially floods and storm surge.** Thus, technical standards would need to be strengthened for critical rural infrastructure, particularly in areas expected to be most severely affected by rising temperature, changing precipitation patterns, or flooding. The GARR PforR

[23] World Bank Group. 2019. *Urban and Rural Municipal Solid Waste in China and the Circular Economy: A Brief Overview and Opportunities Going Forward*. World Bank, Washington, DC. https://openknowledge.worldbank.org/handle/10986/33838

[24] China Association of Urban Environmental Sanitation. 2017, October. *The China Municipal Waste Development Report*. Beijing: China Association of Urban Environmental Sanitation.

[25] http://www.xinhuanet.com/gongyi/2018-09/30/c_129964054.htm

[26] Ministry of Housing and Urban-Rural Development of the People's Republic of China. 2018. *Chinese Urban-Rural Construction Statistical Yearbook (2018)*. Beijing: China Planning Press (in Chinese).

[27] Ammoniacal-nitrogen ($NH_3$-N) is a measure for the amount of ammonia, a toxic pollutant often found in landfill leachate and in waste products, such as sewage, liquid manure and other liquid organic waste products.

will support the development of climate-resilient rural infrastructure (solid waste systems and wastewater facilities)[28] in vulnerable areas.

24. **The NRRA is an agency within MARA responsible for China's efforts against poverty and promoting development in rural areas while protecting the environment.** Established on February 25, 2021, it supersedes the former State Council LGOPAD, which was mandated to coordinate the eradication of extreme rural poverty. The NRRA's mandates include coordinating the transition from China's Poverty Reduction Program into the RRP (2018–35). The Rural Revitalization Promotion Law (RRPL), adopted by China's National People's Congress on April 29, 2021, provides the legal framework for implementing the RRP through phased five-year RRS plans aimed at promoting the overall upgrading of agriculture, the professional development of farmers, the modernization of agriculture and rural areas, and the revitalization of the countryside.

25. **The proposed GARR PforR will endeavor to address the underlying institutional constraints for implementing green agriculture and rural revitalization.** This would be achieved by strengthening national and subnational (provincial and county level) institutional capacity for governance, including developing systems for resource mobilization; program budgeting and expenditure tracking; and monitoring, reporting, and verification (MRV) of GHG emissions (especially methane) from agriculture.

***GARR II PforR Provinces***

26. **The proposed GARR PforR will support the adoption of green agricultural practices and rural infrastructure development in Hubei and Hunan provinces which are located in the central region of China.** The two provinces have adequate fiscal space (sustainable debt ratio) to borrow from the World Bank. The two provincial governments believe that adopting green agricultural practices (GAPs) and climate-smart agriculture (CSA)—to achieve the triple wins of increasing productivity, building resilience, and reducing GHG emission; restoring and protecting degraded agricultural ecosystems; and increasing access to low-carbon, energy efficient and climate-resilient rural infrastructure and public services are imperatives to achieving the *harmonious coexistence of man and nature*.

**Hubei Province**

27. **Hubei is among the top 10 economies and is a major agricultural province in China.** According to the China's National Bureau of Statistics (NBS), Hubei's GDP in 2021 was CNY 5,001.29 billion (USD 781.45 billion), ranking seventh in the country; with a per capita income of CNY 86,600 (USD 13,531.25 billion), ranking ninth in the country. The total output value of agriculture, forestry, animal husbandry, and fishery in 2021 was CNY 668.19 billion (USD 104.40 billion, or about 13.35 percent of the total GDP of the province). The per capita farmer income was CNY 18,259 (USD 2,853), ranking 14th in the country. In 2020, Hubei had about 5.24 million ha of arable land, or approximately 7.30 mu/farmer (0.49 ha/farmer). The total area under irrigation was 2.97 million ha. Hubei is an important grain-producing province, including summer grain: rice, corn, sorghum, millet, and soybean. Hubei also produces several industrial crops, such as tea, fruit, cotton, oilseeds, hemp, sugar, tobacco, and medicinal plants. Hubei ranks first in rapeseed production in China. In addition, Hubei is a large livestock producer of pigs, cattle, sheep, and poultry (broilers and layers). In 2020, there were about 24,989 large-scale livestock farms in the province; the province produced about 26.31 million pigs, 1.01 million cattle, 5.33 million sheep, and 593 million poultry slaughtered for meat. Given its abundant water resources, Hubei is also one of the largest producers of aquaculture products in China, comprising mainly freshwater fish, shrimp, crab, and shellfish, some integrated into the rice-fish-production systems.

[28] "Climate-resilience infrastructure" refers to how well infrastructure withstands, and how quickly it recovers from, natural hazards made worse by climate change. As climate change causes disasters like floods, hurricanes, heatwaves, and wildfires to become more severe or frequent, much of rural infrastructure will need to be redesigned and rebuilt for climate resilience.

28. **Being a major agricultural producer, Hubei is one of the largest users of agricultural inputs, with major implications on its environmental footprint.** In 2020, a total of 2.67 million tons of chemical fertilizer were used in the province, with an average application intensity of about 26.8 kg/mu (402 kg/ha), which is 4.9 kg/mu (73.5 kg/ha) higher than the national average. Commercial pesticide use was about 52,000 tons. However, the actual plant utilization rate of chemical fertilizers and pesticides remains low. The unused parts enter the environment through runoff, denitrification, adsorption, and erosion, polluting the soil, water, and air. Long-term excessive and improper application of chemical fertilizers have resulted in acidification, compaction, and a decrease in soil fertility, which, in turn, increased agricultural production costs and lowered the yield and quality of crops. The livestock and poultry industry use large areas of pasture and consume large quantities of fodder and animal feed. In 2021, the livestock and poultry sector produced over 100 million tons of manure. At less than 80 percent, livestock and poultry manure's comprehensive utilization rate remains low. In 2021, Hubei's combined COD, $NH_3$-N, TN, and TP were about 729,419 tons; 16,103 tons; 98,763 tons; and 15,231 tons, respectively. In addition, Hubei generates large quantities of crop straw residues (often burned in the fields) and aquaculture wastewater, which are not properly managed, causing air and water pollution.

29. **Although the absolute value of rural productive infrastructure investment has increased rapidly in recent years in Hubei, the relative proportion still lags behind more developed provinces, such as Jiangsu, Shandong, and Guangdong.** Only 16.2 percent of Hubei's farmers use modern agricultural equipment, such as sprinklers and drip irrigation, and only 41.7 percent of wholesale markets of agricultural products have cold storage. In addition, the quality and use efficiency of existing productive infrastructure are relatively low, while the operation and maintenance costs are high. Thus, it is not only necessary to increase investment in rural productive infrastructure, but also to improve their quality and use efficiency. Due to inadequate processing, marketing, and logistics infrastructure, the value addition of agricultural products is relatively low. Most agro-business entities are engaged in raw material production and/or the primary processing of products. The overall processing rate of agricultural products in Hubei is about 68 percent, of which the final processing rate (or finished agro-products) is less than 20 percent, while in the more developed provinces (e.g., Jiangsu, Guangdong, and Shandong), these rates are about 90 percent and 60 percent, respectively.

30. **In recent years, the supply of basic public services in rural areas in Hubei has continued to increase, but the solid waste and wastewater infrastructure are still below par.** Since 2018, Hubei has taken the lead in promulgating local standards for rural toilet improvement in China and has built and renovated about 3.76 million household toilets and 29,000 public toilets in rural areas, achieving a penetration rate of 90.15 percent of rural sanitary toilets. By the end of 2020, 150 rural waste treatment facilities have been built in Hubei Province, with a daily processing capacity of 45,600 tons, which meet the "five-point" governance standards. In addition, 897 township domestic sewage treatment plants have been built, with 10,723 km of main and secondary pipelines, increasing the province's sewage treatment capacity from 1.14 million tons/day to 1.7 million tons/day. However, 9.85 percent of the rural areas in Hubei still do not have sanitary toilets, and the overall rural sewage treatment rate is **less** than 34 percent. These basic rural public services must be improved to close the urban-rural gap and achieve the common prosperity goal.

**Hunan Province**

31. **Hunan is also among the top 10 economies and one of the major agricultural production areas in China.** Based on China's NBS statistics, Hunan's total GDP in 2021 was CNY 4,606.31 billion (USD 719.74 billion), ranking ninth in the country; with a per capita income CNY 69,300 (USD 10,828), ranking 14th in the country. In 2021, the total output value of agriculture, forestry, animal husbandry, and fisheries was CNY 751.20 billion (USD 117.38 billion, or about 16.31 percent of the province's GDP), and the per capita disposable income of the farmers was about CNY 18,295 (USD 2,859), ranking 13th in the country. The province is an important producer of grains, tea, and citrus and a major producer of pigs. Its total grains (mainly rice, wheat, and corn) output is around 60 billion catties (100 million metric tons). In 2021, Hunan ranked first in the rice planted area in the country and second by output. The tea planted area reached 2.66 million mu (177,300 ha), ranking eighth in the country, and the citrus area of 5.7 million mu (380,000 hectares), ranking third in the country.

The effective irrigation area was 32.93 million ha. Hunan is also a major producer of livestock and poultry. In 2021, there were 42.02 million live pigs (ranking second in the country), 4.35 million cattle, 7.75 million sheep, and 374.56 million poultry. There were about 17,657 farms with more than 500 pigs; 1,437 farms with more than 10,000 broilers; and 2,097 farms with more than 2,000 layers.

32. **Hunan's intensive agricultural production systems also use large quantities of agricultural inputs, resulting in a significant environmental footprint.** In 2021, the province's total chemical fertilizer use amounted to 2.24 million tons (ranking 11th in the country), with an average application intensity of 16.37 kg/mu (245.55 kg/ha) and a low plant utilization rate. In addition, the province used 101,450 tons of pesticides, ranking third in the country. Hunan also used 75,998 tons of agricultural plastics, including greenhouse, mulch film, and agrochemical packaging materials. Less than a third of this amount was recovered. In the same year, the livestock and poultry manure generated amounted to about 25.18 million tons, of which only 83 percent were treated and recycled. Hunan's combined COD, $NH_3$-N, TN, and TP were about 653,600 tons; 20,400 tons; 99,200 tons; and 14,400 tons, respectively. Hunan also generates large quantities of crop straw residues (with significant amounts burned in the field) and aquaculture wastewater which are not properly managed, causing air and water pollution.

33. **The greening of agricultural value chains is facing significant challenges.** Hunan's agricultural production is predominantly carried out by small farmers. Their scale of operation is relatively small, and product quality and safety assurance are difficult partly due to a lack of province-wide production standards, regulations, and guidelines; and partly due to a lack of monitoring and enforcement mechanisms. Awareness of and skills in green and modern agricultural management practices are also low. In addition, inadequate productive infrastructure such as irrigation and drainage, processing, marketing, and logistics is hampering the value-addition efforts for agro-products. Furthermore, the quality and use efficiency of existing productive infrastructure need to be improved, and sustainable financing of O&M costs is also badly needed. Agricultural landscapes and ecosystems are highly degraded in the Hunan province. Agricultural production areas in Hunan have been affected by heavy metal contamination (about 13 percent of arable land), mainly caused by industrial discharges of flu gas, wastewater and waste residue, and metal mine tailings. Agricultural soil quality is further affected by the overuse of agrochemicals and poor farming practices.

34. **Despite the increase in public investments in agricultural and rural infrastructure in Hunan, there is still a large deficit to be addressed.** Hunan's inadequate and aging agricultural infrastructure, such as irrigation and drainage, markets and warehouses, and cold storage and chains, constrain the transformation into green, low-carbon, and sustainable agricultural development. In addition, many facilities that help to improve rural living conditions, such as solid and wastewater management systems, are inadequate. The distribution of rural infrastructure and public services is also uneven. Hunan has made efforts to improve the living environment and public services in rural areas and to build beautiful and livable villages. For example, Hunan has increased the number of solid waste and sewage treatment facilities in rural areas, promoted the classification of rural domestic waste, increased capacity for rural domestic waste and sewage treatment, promoted improvements in rural toilets, and improved the rural living environment. However, access to rural wastewater management services is only between 20 and 25 percent.

### C. Proposed Program Development Objective(s)

35. **The PDO is *to strengthen institutional capacity for implementing the Rural Revitalization Program and enhancing adoption of environmentally-sustainable agricultural practices and rural infrastructure development in selected areas of Hubei and Hunan***. The institutional capacity for governance will be strengthened at the central (at NRRA) and provincial levels. To incentivize counties promote environmentally-sustainable practices the higher-level governments (central and provincial) fiscal transfers will be made against achieving specific verifiable environmental results. These will be monitored and evaluated through green tagging of program-budgets and expenditures tracking, and the IT-Platform

for mapping and M&E of the rural infrastructure and public services. Farmers and agro-enterprises will be incentivized to adopt green technologies and practices through matching grants and output-based subsidies, respectively.

36. **The proposed GARR PforR's PDO-level indicators are:** (1) increase in green financing of agriculture and rural infrastructure development achieved in the Program Counties (RA1); (2) reduction in pollutant loads from agricultural (crops, livestock, and aquaculture) production systems and rural domestic wastewater treatment facilities (WWTFs) (COD, $NH_3$-N])[29] achieved in the Program Counties (RA2, RA3, and RA4) (metric tons/year); (3) GHG emissions reduction achieved in the Program Counties (RA2, RA3, and RA4) (metric tons/year $CO_2$-equivalent); and (4) beneficiaries reached with assets or public services (disaggregated by gender) in the Program Counties (RA1, RA2, RA3, and RA4).

37. **The GARR PforR's contribution to GHG emission reductions will be indirectly calculated during program implementation.** This will be done at the mid-term and the end of the program (compared with the 2021 baseline values) by using M&E data on quantities of nutrient load reduction and pollutant load reduction achieved under PDO/outcome indicators (2) above to calculate the metric tons of $CO_2$ equivalent reduced from the mitigation measures. This approach would give third-party verification agencies sufficient time to verify the results using the agreed protocols; and monitoring, reporting and verification (MRV) methodologies developed under the GARR PforR. Additional GHG reductions will be derived from adaptation measures, such as a reduction in FLW, adoption of climate-smart agricultural practices (e.g., technologies that increase water use efficiency such as drip irrigation and fertigation), returning crop straw/residues to soil, using green manure, and practicing crop rotation.

### D. Environmental and Social Effects

38. **An ESSA was carried out to comprehensively understand the environmental and social (E&S) management systems applicable to the GARR PforR.** A combination of methods was applied in the ESSA, including E&S risk screening, E&S impacts assessment, desk review, site visits and observations, and robust stakeholder engagements. Annex 5 summarizes the ESSA's main findings and conclusions. The GARR PforR is expected to bring overall E&S benefits. Its outcomes are intended to reduce pollution to air, water, and land; increase the efficiency of natural resources (especially land and water) use; and protect the environment and restore degraded agricultural ecosystems in Hubei and Hunan.

39. **An E&S screening was conducted on the proposed GARR PforR activities to exclude those with a high potential to cause significant adverse impacts on the environment and/or affected people.** The excluded activities include those that (1) are domestically classified as Category A (environmental impact assessment (EIA) report category) projects; (2) would be implemented in environmentally-sensitive areas (including the legally-established protected areas and the regions sensitive to environmental impacts) as defined in the *Construction Project EIA Classification Catalogue*; (3) would be implemented in areas with significant legacy pollution; (4) involve construction, upgrading, relocation, or shutdown of livestock/poultry farms; (5) that involve construction, upgrading, or expansion of domestic solid waste treatment facilities (such as incineration plants and landfill sites); (6) would involve large-scale land acquisition; (7) would involve the acquisition of basic farmland; and (8) would involve restoring lakes/rivers by requisition of water/land/fishing materials, or restoring forests by requisition of farmland, among others.

40. **With the E&S exclusion list, the GARR PforR will focus on supporting small-scale physical infrastructure as well as technical assistance activities,** such as reducing chemical fertilizers and toxic pesticides; treating and recycling livestock and poultry wastes; constructing rural domestic wastewater management facilities; constructing rural domestic solid waste collection and transfer facilities; returning crop straw to farmland; managing heavy metals in degraded farmland

[29] These two key pollutants have been selected because they are priorities set since the 12th FYP, under which specific reduction targets and detailed monitoring and verification arrangements have been spelled out.

soils; treating wastewater and tailwater from aquaculture farms; developing regulations, standards, and guidelines for GAP; preparing spatial IVDPs; and training and capacity-building activities, among others.

41. **The overall E&S risks/impacts associated with these GARR PforR activities are considered *Substantial***. The first includes temporary small-scale construction-related and site-specific risks/impacts, such as dust, wastewater, noise, solid waste, soil erosion, limited land acquisition or use, and occupational health and safety (OHS) issues. The second includes impacts on the local environment, society, and the ecosystem resulting from the operation/implementation of the GARR PforR-supported facilities/activities, such as effluent and sludge from rural domestic WWTFs, odor and leachate from domestic solid waste collection and transfer facilities, wastewater and odor from manure management facilities, wastewater and tailwater from aquaculture farms, NPS pollution from fertilizer and pesticide application, removed residues from heavy metal polluted farmland, labor management issues, workers' health and safety risks, impacts on farmers' livelihoods, and potential downstream indirect impacts of technical assistance activities, among others. These adverse E&S impacts are neither significant nor irreversible and can be easily identified and avoided, minimized, and mitigated through known and demonstrated technologies and good management practices. Neither Operation Manual (OM) or Bank Procedure (BP) 7.50 (International Waterways) nor OM/BP 7.60 (Disputed Areas) apply to the GARR PforR.

42. **The ESSA concludes that China has established comprehensive systems to manage the related E&S risks or impacts at national, provincial, and local levels.** The systems consist of legal frameworks (laws, regulations, guidelines, and standards, etc.) that are principally consistent with the World Bank's Program for Results Policy and Directive, Environment Health and Safety (EHS) guidelines, and the Good International Industry Practice (GIIP). They also have corresponding implementation mechanisms and institutional arrangements for enforcing the legal frameworks. A fully-financed and well-staffed institutional structure through various government levels is in place and efficiently operates to execute the E&S legal frameworks. The country's track record shows that its management capacity and performance are substantial and that the systems can provide an acceptable basis for addressing the possible E&S issues related to the activities supported under the GARR PforR.

43. **The ESSA also identified some gaps in the E&S management practices.** First, OHS awareness and training should still be provided for agro-enterprises and waste treatment facilities, such as those dealing with livestock and poultry manure recycling, crop straw storage and processing, solid waste collection and transfer facilities, rural and township sewage treatment facilities, and the management and supervision staff of the local authorities. Second, odor issues exist in traditional livestock and poultry farms, some domestic solid waste transfer stations, and WWTFs.

44. **The ESSA report recommends that the GARR PforR should enhance Hubei's and Hunan's E&S management systems by filling the gaps.** This could be achieved by implementing the following actions that have been included as the PAPs: (1) implementing mitigation measures to ensure that odor treatment equipment for new or upgraded livestock and poultry manure treatment facilities are installed and domestic solid waste transfer stations are well designed, constructed, and operated; and (2) preparing and implementing OHS training for employees of agro-enterprises; livestock, poultry manure, and WWTFs; solid waste transfer stations; and crop straw storage and processing facilities.

45. **Robust engagement was carried out with relevant stakeholders during the ESSA process,** including with the government departments at the national, provincial, county/city, and township levels; local communities; and relevant enterprises by means of meetings, field visits, and online interviews. The draft ESSA report was shared with the NRRA/IPRCC, The Hubei and Hunan provincial and county PMOs, relevant provincial government departments, and all demonstration counties/cities on October 11, 2022. Consultation meetings on the draft ESSA report were carried out with the key stakeholders on October 26, 2022 (Hunan) and October 27, 2022 (Hubei). During the preparation of the ESSA report, the stakeholders consulted voiced their support for the proposed GARR PforR. Both Hubei and Hunan leaders acknowledged that the draft ESSA report's findings and recommendations were relevant and invaluable in strengthening their implementation capacity of the E&S management systems. Some participants provided substantive feedback on how

to improve the accuracy of the ESSA report, which will be reflected in the revised ESSA report. The revised ESSA report were disclosed on the respective governments' websites in Hubei on November 25, 2022, and in Hunan and at the NRRA on November 29, 2022. The ESSA report will be disclosed at the World Bank's website prior to the appraisal mission, which is scheduled for second half of December 2022.

46. **A grievance redress mechanism has been established.** The existing program grievance redress mechanism (GRM) includes community and enterprise. The community GRM consists of four levels. First, grievances are reported directly to the relevant PIUs to seek a solution. Second, grievances are reported to the village or community committee for address. Third, grievances are reported to the township government or sub-district office for coordination and address. Fourth, grievances are reported to the county Public Complaints and Proposals Bureaus (PCPBs) or the county head's hotline/mailbox, which includes a mechanism for collecting complaints, initiating hearing within 7 days, and resolving within two months. In addition, residents can resolve more serious disputes through civil actions at courts. The enterprise GRM has two aspects. First, workers' grievances which are handled through a three-tier labor dispute resolution mechanism, namely, the enterprise labor disputes and redressing mechanism, the township government's labor dispute mediation center, and the county government's labor mediation center. At the enterprise level, workers can seek a solution through the enterprise/factory manager mailbox, or the trade union. If any dispute cannot be addressed satisfactorily, worker can go through the government mediation mechanism, or seek solution by labor arbitration. Second, the enterprise sets up an external relations department, and assigns a contact and a telephone number to collect complaints and suggestions from the public.

47. **Communities and individuals who believe that they are adversely affected as a result of a Bank-supported PforR operation, as defined by the applicable policy and procedures,** may also submit complaints to the existing program grievance mechanism or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints are promptly reviewed to address pertinent concerns. Project-affected communities and individuals may submit their complaints to the Bank's independent accountability mechanism that houses the inspection panel, which determines whether harm occurred or could occur as a result of Bank non-compliance with its policies and procedures and the dispute resolution service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted at any time after concerns have been brought directly to the Bank's attention and Bank management has been given an opportunity to respond. For information on how to submit complaints to the Bank's GRS, please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the Bank's accountability mechanism, please visit https://accountability.worldbank.org.

## E. Financing

### *Program Financing*

48. **The total GARR II financing is estimated at USD 4,450 million, of which USD 4,100 million (CNY 29.3 billion) will be financed by the Chinese government, and USD 350 million will be financed by the IBRD Loan.** Of the USD 4,100 million Chinese government financing, it is estimated that USD 2,464 million will come from Hubei province, USD 1,605 million from Hunan province, and 31 million from NRRA (see Table 1).

**Table 1: Proposed Program Financing Plan (FY2024-29)**

| Source | NRRA | | Hubei Province | | Hunan Province | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Amount (USD Million) | % of Total | Amount (USD Million) | % of Total | Amount (USD Million) | % of Total | Amount (USD Million) | % of Total |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Government Budget | 31.00 | 75.6 | 2,464.00 | 93.5 | 1,605.00 | 90.4 | 4,100.00 | 92.1 |
| IBRD Loans | 10.00 | 24.4 | 170.00 | 6.5 | 170.00 | 9.6 | 350.00 | 7.9 |
| **Total** | **41.00** | **100.0** | **2,634.00** | **100.0** | **1,775.00** | **100.0** | **4,450.00** | **100.0** |

.

## CONTACT POINT

### World Bank

| | | | |
|---|---|---|---|
| Name : | Ladisy Komba Chengula | | |
| Designation : | Lead Agriculture Economist | Role : | Team Leader(ADM Responsible) |
| Telephone No : | 5788+7681 / | Email : | lchengula@worldbank.org |

| | | | |
|---|---|---|---|
| Name : | Wendao Cao | | |
| Designation : | Senior Agriculture Economist | Role : | Team Leader |
| Telephone No : | 5788+7693 | Email : | wcao1@worldbank.org |

### Borrower/Client/Recipient

| | | | |
|---|---|---|---|
| Borrower : | People's Republic of China | | |
| Contact : | Xiang Peng | Title : | Director |
| Telephone No : | 68552485 | Email : | zjc@mof.gov.cn |

### Implementing Agencies

| | | | |
|---|---|---|---|
| Implementing Agency : | Hubei Provincial Rural Revitalization Administration | | |
| Contact : | Xinghua Jiang | Title : | Director General |
| Telephone No : | 13907158845 | Email : | hbfpfz@163.com |

| | | | |
|---|---|---|---|
| Implementing Agency : | Hunan Provincial Department of Agriculture and Rural Affairs | | |
| Contact : | Keyun Chen | Title : | Head of Center for Foreign Economic Cooperation in Agricultu |
| Telephone No : | 13607448992 | Email : | hunanpmo@163.com |

| | | | |
|---|---|---|---|
| Implementing Agency : | National Rural Revitalization Administration | | |
| Contact : | Weiping Tan | Title : | Deputy Director General |
| Telephone No : | 13910803163 | Email : | tanweiping@iprcc.org.cn |

## FOR MORE INFORMATION CONTACT

The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 473-1000
Web: http://www.worldbank.org/projects