

Sector-wide
Evaluation

ADB Support for Agriculture, Natural Resources, and Rural Development



Independent
Evaluation **ADB**

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Sector-wide Evaluation
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ADB Support for Agriculture, Natural Resources, and Rural Development

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NOTES

- (i) In this report, "\$" refers to United States dollars.
- (ii) For an explanation of rating descriptions used in Asian Development Bank (ADB) evaluation reports, see ADB. 2015. *2015 Guidelines for the Preparation of Country Assistance Program Evaluations and Country Partnership Strategy Final Review Validations*. Manila.

Director General	Marvin Taylor-Dormond, Independent Evaluation Department (IED)
Deputy Director General	Véronique Salze-Lozac'h, IED
Director	Nathan Subramaniam, Sector and Project Division, IED
Team leaders	Andrew Brubaker, Principal Evaluation Specialist, IED Garrett Kilroy, Evaluation Specialist, IED
Team members	Shimako Takahashi, Evaluation Specialist, IED Lawrence Nelson Guevara, Senior Evaluation Officer, IED Franklin De Guzman, Senior Evaluation Officer, IED Elizabeth Li-Mancenido, Evaluation Analyst, IED

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Abbreviations

ADB	–	Asian Development Bank
ADF	–	Asian Development Fund
ANR	–	agriculture and natural resources
ANRRD	–	agriculture, natural resources, and rural development
CEP-BCI	–	Core Environment Program and Biodiversity Conservation Corridors Initiative
CPS	–	country partnership strategy
DMC	–	developing member country
DMF	–	design and monitoring framework
FAO	–	Food and Agriculture Organization of the United Nations
GDP	–	gross domestic product
GEF	–	Global Environment Facility
GMS	–	Greater Mekong Subregion
ICT	–	information and communications technology
IDFP	–	irrigation, drainage, and flood protection
IED	–	Independent Evaluation Department
IEG	–	Independent Evaluation Group
IFAD	–	International Fund for Agricultural Development
IFC	–	International Finance Corporation
IFPRI	–	International Food Policy Research Institute
Lao PDR	–	Lao People's Democratic Republic
O&M	–	operation and maintenance
PCR	–	project (or program) completion report
PNG	–	Papua New Guinea
PPER	–	project performance evaluation report
PRC	–	People's Republic of China
PSOD	–	Private Sector Operations Department
PVR	–	project (or program) completion report validation report
WBN	–	results-based loan
RETA	–	regional technical assistance
SDCC	–	Sustainable Development and Climate Change Department
SDG	–	Sustainable Development Goal
SMEs	–	small and medium-sized enterprises
TA	–	technical assistance

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IED remains fully responsible for this report.

Foreword

The Asia and the Pacific region is transitioning from largely agrarian and rural economies to increasingly nonagricultural and urban economies, and from subsistence to commercial agriculture. However, because Asia is home to most of the world's hungry and most of the poor still live in rural areas and are engaged with agriculture and related activities for their livelihoods, agriculture and rural development remains a cornerstone as countries make this transition.

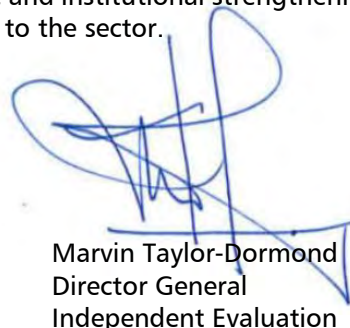
Moreover, the recognition of pressing challenges related to urbanization and changing food demands, environmental degradation, and climate change impacts on water resources have increased the prominence of the sector. This creates both challenges and enormous opportunities for continued support of Asian Development Bank (ADB) for agriculture, natural resources and rural development.

Although ADB began moving away from the sector, culminating in Strategy 2020 downgrading it to a noncore sector, it has re-engaged following the 2008 food price crisis. ADB support for the agriculture, natural resources, and rural development sector amounted to \$12.2 billion over the evaluation period between 2005 and 2017, and in recent years, its annual support has exceeded \$2 billion.

This evaluation, which focused on the ADB defined agriculture, natural resources and rural development sector, is part of a new series of sector-wide evaluations undertaken by the Independent Evaluation Department. The sector is inherently complex, with close interactions and competition for resources with other sectors and the broader political economy. This complexity, coupled with gaps in institutional capacity and resource constraints, poses challenges for implementation and sustainability of investments, most notably in the irrigation subsector.

The evaluation finds that ADB's overall support for sustainable agriculture and food security has been significant in terms of lending volume, but modest on results. This assessment is based on the weakness of ADB's strategic guidance, limited development outcomes, and inadequate institutional arrangements for delivery. It is noteworthy that performance has been improving over the evaluation period. Given the availability of financial resources, re-engagement by ADB in the sector, and the improving portfolio performance, ADB has the potential to make a substantial contribution.

This evaluation report is timely as ADB has recently approved its new corporate strategy, Strategy 2030. The strategy identifies seven operational priority areas. The sector can make direct contributions to at least three of these including (i) rural development and food security, (ii) poverty and inequality, and (iii) climate change and environmental sustainability. Furthermore, ADB's agricultural support will contribute to achieving the Sustainable Development Goals. We trust that the set of recommendations for improved strategic guidance, operational performance and institutional strengthening offered by the evaluation will help ADB deliver a significant contribution to the sector.



Marvin Taylor-Dormond
Director General
Independent Evaluation

ADB Support for Agriculture, Natural Resources, and Rural Development

RECOMMENDATIONS

Strategic

1. Ensure the new operational priority plan for the rural development and food security priority area of Strategy 2030 recognizes the need for multisector solutions and is underpinned by a revised sector framework for agriculture and natural resources, and a revised sector framework for water, with more detailed guidance and a refined project classification.
2. Promote more robust sector diagnostics, through increased technical assistance, to strengthen project pipelines and country partnership strategies that can deliver the Strategy 2030 rural development and food security priority area objectives.

Portfolio and Operations

3. Increase the attention paid to agricultural activities, policy and institutional reforms, and the private sector to address key constraints on outcomes.
4. For expanding areas of work (e.g., value chains) and core work needing improvement (e.g., irrigation) strengthen up-front diagnostic work, quality-at-entry processes, and supervision for better performance, particularly sustainability, and results at the project level.
5. Enhance support for agricultural value chains, through a One ADB approach that articulates collaboration between sovereign and nonsovereign operations.
6. Maintain attention and improve performance of investments in water infrastructure, where ADB has a comparative advantage, and expand focus on broader water resource management and climate actions.

Organization for Delivery

7. Increase ADB's expertise and strengthen the ANRRD staff skills mix.
8. Expand collaboration and partnerships with recognized centers of excellence to complement current staff resources and supplement skills shortages.

This sector-wide evaluation covers a 13-year period from 2005 through 2017, with an emphasis on the period since 2008 following the adoption of ADB's Strategy 2020. During the evaluation period, the Asian Development Bank (ADB) support for the agriculture, natural resources, and rural development (ANRRD) sector amounted to \$12.2 billion. ANRRD lending as a share of total ADB lending for the 2005–2017 period fluctuated between 2% and 12% per year. This evaluation is guided by the Operational Plan for Agriculture and Natural Resources and the portfolio classified by ADB as ANRRD. The evaluation is part of a new series of sector-wide evaluations undertaken by the Independent Evaluation Department.

OVERALL ASSESSMENT

Agriculture remains very important for the region in terms of food security, growth, and poverty reduction as it is a large employer. New challenges related to urbanization and changing food demands, environmental degradation, and climate change have increased the prominence of the sector.

ADB's overall support for sustainable agriculture and food security has been significant in terms of lending volume, but modest on results. This assessment is based on the weakness of ADB's strategic guidance, limited development outcomes and inadequate institutional arrangements for delivery. It is noteworthy that performance has been improving over the evaluation period. ADB has the potential to make a substantial contribution to the sector.

ADB has been meeting its \$2 billion annual approval target for food security. There is a trend towards larger operations, which reflects the focus on infrastructure; however, not all of these operations address food security and the tracking of non-ANRRD support has not been consistent.

The emphasis on water-related infrastructure investments, while fundamental to the sector, does not fully address the increasingly varied and expanding challenges for ANRRD, resulting in gaps between country needs and ADB support.

The comparatively poor performance of irrigation, particularly in terms of effectiveness and sustainability, is a concern. Given ADB's sizable and increasing investment in irrigation over the years, potential gains are at risk.

The balance of staff skills and the role of supervision and implementation support will be important institutional determinants of ADB's future ability to contribute to ANRRD.

FINDINGS

Strategic

- Strategically, the downgrading of agriculture to a noncore sector in 2008 as part of Strategy 2020 was poorly timed, given the 2007–2008 food price crisis.

- ADBs' strategies for agriculture and food security have not been relevant to the region's needs, although their relevance has been improving since 2009.
- The steady decline in lending for investments related to the agricultural policy and production subsectors from 47% in 2005–2009 to 8% in the 2014–2017 and the corresponding increase in support to water-related subsectors from 50% to 80% over the same period is the most significant trend in the composition of ADB's lending. If ADB is to enhance its contribution to sustainable agriculture and food security, it needs to complement continued support for water with increased attention on agricultural services.
- East Asia (\$4.1 billion, 37%), particularly the People's Republic of China, received the most support during the evaluation period; the Pacific (\$31 million, 0.3%) received extremely limited support.
- ADB's operational plans lacked a regional focus, even though regional public goods, trade, and research are important and addressing them would be a natural role for ADB.

Portfolio and Operations

- ADB support for sustainable agriculture and food security improved from a low of 59% successful in 2005–2009 to 79% successful in 2014–2017. Of the major subsectors, the lowest performing was the irrigation (30% of the portfolio) at 47%. The lowest ratings were for sustainability.
- The overall ANRRD success rate (64.5%) was at par with the ADB average (64.9%) but lower than the corporate target of 80%. There were no highly successful projects and at 10% the proportion of unsuccessful projects was higher than the ADB average of 6%.
- ADB's contribution to key links in agricultural value chains was mostly through nonsovereign operations; sovereign operations support has been limited to input supply and production, mainly through infrastructure.
- Excluding the countries covered by the regional projects, ADB nonsovereign operations support for agribusiness has been limited to six countries and needs to expand.
- Policy dialogue has been limited and nonlending activities have not been well aligned with the investment lending.
- Technical assistance has been used to support innovation and emerging areas.
- Remote sensing technologies and impact studies are not used enough to evaluate the causal links between investment project inputs and results.

Organization for Delivery

- ADB's approach, delivery, and resources have been inadequate to meeting the overall goal of sustainable agriculture and food security, with an emphasis on water-related infrastructure.

- ADB needs more specialized skills to carry out sector economic, policy, governance, and institutional analysis as well as to address areas such as value chains and private sector development.
- Staff survey results showed mixed levels of satisfaction with the Rural Development and Food Security Thematic Group.
- ADB has not paid sufficient attention nor provided adequate resources to assuring the quality at entry of ANRRD operations and supervising technical issues.

KEY ISSUES

External

- Numerous external factors, such as trade policy, access to finance, and competing users of natural resources, negatively impact and add to the risk and complexity of agricultural investments. ANRRD investments must be designed so they take account of related sectors and policies and that negative impacts can be mitigated, and synergies identified.
- Climate change impacts are highly detrimental for ANRRD, given the importance of climatic conditions for agriculture and the natural resource base. ADB must support greater resilience through adaptation investments, particularly since agriculture is the predominant user of water across the region. Water-related stresses, including floods and droughts, are among the most significant impacts of increasing climate variability and change.

Internal

- The ADB operational plans do not provide sufficient strategic guidance and clarity.
- ADB does not provide enough support for agricultural policies or for engagement with the private sector. ADB needs to carry out shared public and private sector diagnostic work and complementary project development and implementation support, combined with sector policy dialogue.
- Although ADB is meeting its \$2 billion annual approval target for food security, an ADB-wide approach is lacking.
- The ADB portfolio in many countries is not fully responsive to the range of needs and the application of innovation has been limited. Over the evaluation period, ADB's ANRRD contribution to South Asian and Pacific countries was lower than expected, given their needs.
- ADB's staff composition for sustainable agriculture and food security has not been sufficient to match the growing ambition of the operational plans and Strategy 2030.
- ADB does not have sufficient cross-departmental or cross-divisional cooperation to deliver sustainable agriculture and food security. The ANRRD Thematic Group, on its own, cannot deliver the goals of the Strategy 2030 rural development and food security priority area.

Executive Summary

The Asia and the Pacific region is transitioning from largely agrarian and rural economies to increasingly nonagricultural and urban economies, and from subsistence to commercial agriculture. However, this transition has been uneven. About 64% of the world's hungry are in Asia, and many continue to depend on agriculture for their livelihoods. Agriculture remains a cornerstone as countries make this transition. It is critical for poverty reduction and delivery of the Sustainable Development Goals.

The issues and challenges facing agriculture and food security in the region are varied and dynamic, which makes progress difficult. This evaluation of the support of the Asian Development Bank (ADB) for sustainable agriculture to promote food security in Asia and the Pacific is timely, as ADB has reengaged with the sector after a hiatus in 2008. The evaluation will feed into the Rural Development and Food Security priority area of ADB's Strategy 2030, and associated operational priority area plans and sector frameworks.

The evaluation's overarching question was: has ADB been successful in supporting sustainable agriculture to promote food security in Asia and the Pacific over the period 2005–2017?

ADB's overall support for sustainable agriculture and food security has been significant in terms of lending volume, but modest on results. This assessment is based on the weakness of ADB's strategic guidance, limited development outcomes and inadequate institutional arrangements for delivery. It is noteworthy that performance has been improving over the evaluation period. ADB has the potential to make a substantial contribution to the sector.

Strategically, the 2007–2008 food price crisis demonstrated that the downgrading of agriculture to a noncore sector in Strategy 2020 had been poorly timed. Operational plans that were developed in 2009 and 2015 signaled ADB's clear reengagement with the sector and they have provided valuable sectoral guidance. However, specific guidance, particularly on value chains, private sector development, and specific subsectors (e.g., fisheries) is still lacking. At the same time the lending volumes have increased with ADB now approaching \$2 billion per year for the ANRRD sector.

ANRRD project success rate was at par with the ADB average and it improved over the evaluation period. However, poor project designs and insufficient provision for operation and maintenance have made sustainability a major issue. The poor performance of the irrigation subsector (47% successful rate) is a concern, given irrigation's overall importance for the sector and its fundamental contribution to productivity gains. The results achieved in the ANRRD sector have been mixed overall—modest for productivity, better for natural resource management, positive for smallholders but on a small scale, and not yet fully realized for value chains and private sector engagement. Nonlending activities have not been well integrated with investment lending.

Institutional delivery in this sector has been geared toward water-related infrastructure, reflected in the strategic guidance, staffing, and portfolio of the sector at ADB. However, a sector as complex as ANRRD warrants a more holistic approach, supported by greater resources and staff skills, that can contribute more fully to the complete agriculture value chain.

The sector faces mounting challenges from urbanization, climate change, environmental risks and productivity. These challenges need to be incorporated into developing member countries' approaches to agriculture, and supported by ADB through investments, policy dialogue, and capacity development.

Strategy 2030 designated food security and rural development as a priority area. This area is underpinned by the ANRRD portfolio, offering an opportunity for ADB to rationalize its approach to the sector, improve its performance, and make a greater contribution to more sustainable rural development and increased food security. The evaluation offers strategic, operational, and organizational recommendations designed to help ADB to do so.

Introduction

The challenges and issues of agriculture and food security in Asia and the Pacific are changing

dramatically. Asia remains home to 64% of the world's hungry (about 520 million people). Most of the poor still live in rural areas and mainly rely on agriculture and related activities for their

income and livelihoods. In addition, although countries need to sustain and accelerate broader-based development to feed their growing populations and further reduce poverty in the 21st century, they face increasingly diverse challenges, including natural resource degradation, climate variability and change, food safety, and changes in diets. The slowing of crop yield growth and efforts to reduce food losses and waste constrain the sector's response to these challenges.

ADB is currently embarking on its Strategy 2030, which gives renewed priority to ANRRD, so this is an opportune time to take stock of the Asian Development Bank (ADB) support for agriculture, natural resources, and rural development (ANRRD) since 2005, to review the sector's operational plans, and to help guide future operations.

Evaluation Approach

This evaluation focuses on the sector classified by ADB as agriculture, natural resources, and rural development over the period 2005–2017. It is part of a new series of sector-wide evaluations undertaken by the Independent Evaluation Department (IED). The ANRRD sector, as defined by ADB, is complex, and comprises a sector (agriculture), a theme (natural resources), and a geographic space (rural). It is also the main sector tasked with implementing agricultural operational plans that contain higher goals such as sustainable food security. These higher goals necessitate contributions from other sectors, particularly finance, transport, and energy, and other operational plans, such as those for water, environment, and climate change. These are beyond the scope of this evaluation.

IED developed a theory of change for this evaluation to conceptualize how the ANRRD sector inputs contribute to the overall goal of sustainable agriculture and food security. In the theory of change, the ANRRD sector, underpinned by ADB's organizational structure and staffing, and guided by the two operational plans produced in 2009 and 2015, has developed sovereign and nonsovereign investments, and technical assistance (TA). These inputs translate into outputs covering to varying degrees the 17 ANRRD subsectors. For purposes of this evaluation, these subsectors were arranged into five subsector groups: (i) irrigation, drainage, and

flood protection; (ii) land-based natural resources management; (iii) water-based natural resources management; (iv) agriculture policy and production; and (v) rural water, sanitation, and hygiene. These subsector groups contribute to one or more of the four key outcomes identified in the theory of change (increased productivity, improved smallholder livelihoods, integrated value chain development, and enhanced resilience), leading to sustainable agriculture, and greater food security. This theory of change forms the basis for this evaluation's key questions.

The evaluation focuses on the following overarching question: has ADB been successful in supporting sustainable agriculture to promote food security in Asia and the Pacific? This question is supported by three supporting questions:

- (i) To what extent have ADB's strategies for agriculture and food security been relevant to the needs of the region?
- (ii) To what extent has ADB's support for ANRRD been effective in helping the achievement of the following key outcomes: (a) increased agriculture and water productivity; (b) fully integrated value chains; (c) improved smallholder livelihoods (including gender equity); and (d) enhanced sustainability and resilience of food systems and natural resources?
- (iii) To what extent have ADB's approach, delivery, and resources been appropriate to meeting the overall goal of sustainable agriculture and food security?

The evaluation used a number of evaluation methods and drew on a number of sources. These included (i) a review of ADB documents; (ii) analysis of ADB's portfolio, including reports and recommendations of the President; (iii) a review of IED evaluations and validations; (iv) findings from country partnership strategy (CPS) assessments; (v) a perception survey of ADB ANRRD staff; (vi) background studies, including a literature review, innovative remote sensing case studies to evaluate achievement of outcomes, and a review of the Pacific region; (vii) country case studies (Bangladesh, Cambodia, the People's Republic of China [PRC], and Tajikistan); and (viii) interviews with key stakeholders.

Context

Agriculture and food security issues need to be viewed within the broader context of structural transformation. Countries are being transformed from largely agrarian and rural economies to increasingly nonagricultural and urban economies, and from subsistence to commercial agriculture. As countries transform, the type of agricultural support they need has expanded from a primary focus on production to a broader approach, including value addition and off-farm activities, modernization of food markets and agro-industries, and improved environmental quality and services.

Although many countries are transitioning to middle income status, and as a result, agriculture's contribution to gross domestic product (GDP) has declined, the sector remains vitally important. Although industry and services are increasing their share of GDP, Asia has a large and growing population with significant food and nutrition requirements. Many Asian countries will continue to have large populations dependent on agriculture.

Throughout the 1980s and up to the early 2000s, the agricultural sector in developing countries, including Asia, was regarded as a key ingredient for economic development and poverty reduction. Apart from a few countries such as the PRC, until 2007, most of the developing world had growth rates lower than 2% per annum. This was largely due to macroeconomic and sectoral policies that were inimical to agriculture growth. In parallel, official development assistance was flat in current dollars, and declined in real dollars, during the period 1995–2006.

The importance of agriculture was reinforced when international and national food prices spiked dramatically in 2008, renewing fears of massive food shortages and increased hunger. In response, governments in developing countries and development partners reengaged with agriculture and sought to draw lessons from past failures, such as the need for better policies and gender mainstreaming.

Critically, it was recognized that the agriculture, food security, and malnutrition challenges have changed, becoming more complex and could not

be addressed by increasing agricultural production alone. Asia, in particular, needed to continue improving productivity to meet food requirements and to evolve. Countries needed to increase commercialization, value addition, and processing, to meet the new demands of consumers in middle-income countries. To achieve this, agriculture became increasingly viewed as a private sector activity with investments and policy advice considered within the framework of the value chain.

Lingering agricultural challenges, such as low productivity, impact the Asia and Pacific region but to varying degrees. Agricultural growth rates in the PRC, for example, have been high over a long period but productivity improvements are a key concern for many other countries. The sector has performed best in countries where agricultural productivity has increased fastest, largely through mechanization and technical change, including water saving technologies and precision farming. Improving policies, public expenditure, and finance and rural advisory services also play a key role in increasing productivity.

Food security challenges vary across the Asia and Pacific region, reflecting a range of issues and gaps in productivity, resilience, and policies. For example, based on the Brookings Institution's Ending Rural Hunger Project, malnutrition in South Asia and Southeast Asia stands out as an area of concern, in contrast to the situation in the PRC and many Central Asian countries. Agricultural productivity gaps, both technological and infrastructure, reveal the scope for improvement in many countries. Environmental risks related to water resources, climate change, yields, and land degradation are particularly prevalent in South Asia but they are also relevant for Southeast Asia and even the PRC. Some countries are strong on some issues and weaker on others. Strategies to address these issues should, therefore, reflect this heterogeneity.

Irrigation and technological advances (e.g., improved seeds) have been critically important in bringing land into production and increasing yields. However, inefficient water use, salinization, groundwater mining and pollution, energy subsidies, poor operation and maintenance, and insufficient extension service

support are limiting potential gains. Investment in agricultural research, such as for the development of high-yielding strains of cereals and the use of more efficient fertilizers, has a significant economic payoff. Advances in some countries, such as the PRC, demonstrate the links between information and communications technology and agriculture. Such technologies can increase the share of benefits to producers and should be more widely used. However, underinvestment in agricultural research and technology persists in most countries.

Asia is leading the world in improving nutrition but still has a significant proportion of the world's undernourished people, particularly in South Asia. While undernourishment is generally decreasing, malnourishment in the form of obesity is increasing. Livestock, fisheries, and aquaculture are growing sources of protein and important contributors to the national economies of a number of countries.

Rapid urbanization is creating additional challenges and opportunities along the agricultural value chains. Urban jobs for migrating populations usually have economic links to rural areas. Urbanization has impacts on dietary patterns and production systems, such as the increasing demand for livestock products. Food safety and the demand for enforcement of standards in the production of agricultural products are growing issues throughout Asia. There are growing pressures to consolidate and industrialize agriculture and agribusiness.

The world's 500 million smallholder farmers, 350 million of whom are in Asia, are frequently left behind in ongoing rural transformations. Farms are often consolidated, practices are mechanized, and crops and farming systems change. Out-migration from rural areas for economic and other reasons, the rising age of rural populations, and the feminization of the agricultural labor force exacerbate other challenges and inequities.

Agricultural growth has resulted in negative externalities, which have impacted on the environment, the human population, and the resource base upon which the sector depends. Climate variability and change pose large threats to agriculture and food security in Asia, varying

from country to country. In many parts of the region, ecological damage is evident from growing biodiversity loss, water scarcity, aquifer depletion, water and air pollution, ocean acidification, fisheries over-exploitation, and wetland degradation. The need for more environmentally sustainable and climate-friendly farming systems is increasingly recognized.

Recent improvements in the agricultural performance of many Asian countries are largely attributable to the reform of distorted policies. Taxation of agriculture has been reduced, parastatal marketing and processing enterprises reformed, tariffs and border controls reduced, and public investment in public goods supporting agriculture increased. The PRC has seen significant agricultural output growth as a consequence of such reforms. Continuing barriers to agricultural production and diversification include insufficient access to financial services, fragmented or untitled land holdings, and price controls. Subsidies (e.g., for water and energy in India) also have a distorting effect.

Trade policy remains an impediment. Asia is home to half the world's population but has only one-fifth of its arable land. Despite this, for most countries in the region, agricultural policy continues to be disproportionately focused on rice self-sufficiency, which limits diversification, investment, and trade. Barriers to the rice trade between Asian countries, which were a major contributor to the rapid increase in consumer rice prices during the 2008 food price emergency, have not been significantly reformed.

Relevance of ADB Strategies for Agriculture and Food Security

Portfolio and Trends

For the period 2005–2017, ADB approvals for ANRRD amounted to \$12.2 billion. ANRRD lending as a share of total ADB lending for the 2005–2017 period fluctuated between 2% and 12% per year. Sovereign loans and grants accounted for 91% of the bank's financial support, nonsovereign operations for 6%, technical assistance (TA) for 2%, and regional TA for 1%.

ADB has exceeded the \$2 billion target for ANRRD and food security annual approvals set in the 2009 Operational Plan for Sustainable Food Security in Asia and the Pacific. In the initial years, most of this support came from non-ANRRD interventions that contributed to ANRRD and food security—predominantly in transport and communications, finance, and multisector operations. However, in 2017, ANRRD lending by itself approached \$2 billion (although the assumption is that all ANRRD investments contribute to food security, which may not be so in some cases). ADB's tracking of non-ANRRD investments contributing to food security was less than comprehensive and important omissions included ADB sovereign and nonsovereign micro, small, and medium-sized enterprise support for rural development activities. Better tracking could lead to greater synergies with the rest of the agriculture and food security portfolio.

The volume of sovereign loans and grants for ANRRD has risen steadily and has resulted in a clear and significant shift to larger but fewer projects across all regions. The annual average total ANRRD commitment amount increased from \$650 million in 2005–2009 to about \$827 million in 2010–2013, and to \$1.15 billion in 2014–2017. The average size of operations increased from \$58 million in 2005–2009 to \$112 million over the 2014–2017 period. The move to larger projects reflects the preference for capital-intensive water-related infrastructure projects and fewer agriculture policy and production projects.

The most significant trend in the portfolio is a drop in lending for agricultural policy and production and corresponding increase in water-related lending. The analysis reported a sharp, steady decline in the lending for investments related to the agricultural policy and production subsectors, from 47% in 2005–2009 to 8% in the 2014–2017. In turn, there was a corresponding increase in support to water-related subsectors from 50% to 80% over the same period.

ANRRD projects are unevenly distributed across the region. Most support is directed to East Asia particularly the PRC (\$4.1 billion, 37%). By contrast, extremely limited support was provided to the Pacific (\$31 million, 0.3%). The rest went to Southeast Asia (\$2.9 billion, 26%), Central and West Asia (\$2.3 billion, 20%), and South Asia

(\$1.8 billion, 17%). Over the evaluation period, lending to South Asia increased by 33% from \$593 million in 2005–2009 to \$886 million in 2014–2017. Lending to Southeast Asia also increased by 16% from \$886 million to \$1 billion, while that to Central and West Asia slightly decreased from \$809 million to \$757 million during the same period.

The relative importance of ANRRD subsectors varies across regions. The Central and West Asia Department has become completely dominated by the irrigation, drainage, and flood protection (IDFP) subsector group over the evaluation period. IDFP lending accounted for \$2 billion, or 88% of total ANRRD support to the region in the evaluation period. The Southeast Asia Department portfolio used to cover all subsector groups but this department has now also moved almost exclusively to the IDFP group (\$958 million out of \$1 billion, or 93%, for 2014–2017). The South Asia Department used to be focused on agriculture policy and production (\$440 million, 74% of the 2005–2009 ANRRD support), but is now focused wholly on water infrastructure through IDFP (\$412 million, 46%) and water-based natural resources management (\$478 million, 54%). For the East Asia Department, while the water-related infrastructure subsector increased from \$332 million, 34% of the ANRRD support in 2005–2009, to \$930 million or 49% in 2014–2017, the department has by far the most diversified portfolio across all the subsectors.

The creation of an agribusiness unit in the Private Sector Operations Department (PSOD) during the evaluation period was an important institutional commitment. Nonsovereign ANRRD operations began in 2012 and the agribusiness investment unit created in 2015 so a clear performance trend cannot yet be discerned. Since then, \$697 million has been provided for 15 ANRRD operations. This has been mostly through loans with some equity investment and one guarantee. The PRC dominates this portfolio with 59% of approvals. No projects have yet been completed but cancellations are an issue. For 2012–2017, the cancellations for nonsovereign operations in the ANRRD sector reached \$169 million or 24% of total approvals during the period, while ADB-wide nonsovereign operations cancellation rate was 12.5% for all sectors. The lack of synergy between ANRRD sovereign operations and ANRRD

nonsovereign operations also requires greater attention.

Cofinancing and TA add value to ADB's ANRRD work. Cofinancing for the sector has been rising in absolute terms and represents 8% of ADB financing. From the case study countries, cofinancing has been received from the Global Environment Facility, International Fund for Agricultural Development (IFAD), Japan Fund for Poverty Reduction, and other bilateral agencies. One-fourth of ANRRD operations benefited from cofinancing for a total amount of \$863 million. Average annual TA for ANRRD almost tripled from \$13 million in 2005–2009 to \$38 million in 2010–2013, and then fell to \$19 million in the 2014–2017 period, largely due to a reduction in cofinancing. Cofinancing and TA provide both additional funding and technical resources, which often help to extend ADB support to areas beyond infrastructure (e.g., natural resources). The amount allocated to regional TA declined by 80% from \$70 million in 2005–2009 to \$14 million in 2013–2017. This coincided with a decline in support for agricultural research, which has been an important contributor to the region's productivity.

ANRRD projects on average take almost 2 years longer to implement than the ADB portfolio as a whole. The average age of active projects was 9–13 years, while the average implementation time of completed projects was 8.1 years. By comparison, the average time to completion for all ADB projects was 7.2 years. This can be partly explained by the challenging and complex nature of the projects and the often limited country implementation capacity.

ADB's corporate guidance has been less than relevant although it has been improving since the 2007–2008 food price crisis. The focus of ANRRD in strategic documents and its perceived role in meeting ADB's overarching objectives has evolved. ADB moved away from agriculture under Strategy 2020 but has subsequently reengaged in ANRRD. Since the 2007–2008 food price crisis, ADB's strategies have continued to focus on the broader growth agenda but they have increasingly acknowledged that agriculture and natural resources management remain important for the region, and thus that there is still an essential role for ANRRD in achieving inclusive growth,

environmental sustainability, and adaption to climate change in rural areas.

ADB guidance for agriculture operations has improved but it has not sufficiently covered value chains and private sector development. ADB operational plans issued in 2009 and 2015 were more focused with a view to guiding ADB rather than simply justifying the existing portfolio. However, the recent ANRRD-related operational plans still lack needed specificity and direction, which was previously provided through subsector policies. PSOD has established an agribusiness investment unit and has developed a strategy as to how it will develop this business line, but it has not yet published this strategy.

The \$2 billion annual approval target for food security established in 2009 was helpful in signaling the importance of the issue to ADB. However, there were a number of limitations with the definition and measurements associated with this target. Similarly, the results frameworks of the 2009 and 2015 operational plans generally lacked baselines and targets.

The 2015–2022 Operational Plan for Agriculture and Natural Resources was limited in ambition, leaving gaps in both emphasis and geography. Infrastructure (in particular, water-related infrastructure) dominates almost all aspects of the strategic approaches. For example, reducing food losses is correctly identified as a key need in the operational plan; however, the strategic solution is almost wholly concerned with preventing pre-harvest crop losses through better flood protection and drainage, and measures to address salinity. Value chain work is largely supported through improved market connectivity, particularly transport improvements. Key aspects such as rural finance are less prominent. All these points require greater direction. The 2015 operational plan recognized the sector's complexity and the importance of aligning with other plans, such as the water operational plan.

The operational plans lacked regional focus even though regional public goods, trade, and research are important and addressing them would be a natural role for ADB. Natural resources, such as water and biodiversity, across river basins and landscapes, received minimal attention at the strategic level except in the case of the Greater

Mekong Subregion. More engagement with regional institutions (e.g., the Association of Southeast Asian Nations, South Asia Association for Regional Cooperation, and Consultative Group on International Agricultural Research institutions) on issues of trade, research, and regional public goods is needed. ADB should pursue a broader strategic approach beyond individual country priorities.

About half of the 61 country partnership strategies (CPSs) examined as part of this evaluation supported ANRRD directly, mainly through infrastructure-related investments. CPSs now systematically address the key thrusts of the operational plans related to infrastructure, such as enhanced rural connectivity (e.g., roads) and productivity (e.g., water infrastructure), but are slower to address other areas of importance for value chain development. More recent CPSs contained more information, analysis, and proposals to tackle challenges such as food safety. For example, the most recent CPS for Mongolia, covering 2017–2020 discussed constraints on and opportunities for agriculture and examined how these could be linked with potential value chain investments.

The four case study countries generally addressed agriculture in their CPSs, except in earlier years for Tajikistan. During the evaluation period, CPSs prepared for Bangladesh, Cambodia, and the PRC consistently targeted agriculture and food security. The PRC CPSs also put significant emphasis on addressing environmental degradation and threats. In Bangladesh, ADB focused on improving the rural livelihoods of poor farmers. The Cambodia CPSs recognized the importance of agricultural commercialization to support rural–urban development. The CPS, 2010–2014 for Tajikistan, in contrast, moved out of agriculture, citing a decision to be more selective. The document stated that this sector was covered by other development partners. However, this position was reversed in the Tajikistan CPS, 2016–2020, in which ADB reengaged with agriculture and presented targets for food security and climate resilience.

The complexity of the sector has been recognized by other multilateral development banks, resulting in strategic and organisational differentiation. For example, starting in July 2014,

the World Bank formally recognized agriculture as a sector. It made environment and natural resource management crosscutting themes by establishing separate global practices for each one. The Inter-American Development Bank has several individual sector frameworks—food security, agriculture and natural resources, and environment and biodiversity. Opportunities for such strategic differentiation in the ANRRD sector can be explored by ADB in a way that is appropriate for ADB’s overall Strategy 2030 and provides better strategic focus.

Effectiveness of ADB Support

Performance

ADB support for sustainable agriculture and food security has improved from a 59% success rate during 2005–2009 to 79% in 2014–2017. A review of 110 project completion report validation reports and project performance evaluation reports circulated during 2005–2017 indicates that the overall ANRRD success rate (64.5%) was at par with the ADB average (64.9%) but lower than the corporate target of 80%. There were no highly successful projects and at 10% the proportion of unsuccessful projects was higher than the ADB average of 6%. The overall trend over the evaluation period for ANRRD is positive; since 2010, there has been a greater proportion of successful projects than the ADB average.

Performance across subsectors was uneven. Performance was highest for land-based natural resources management (LBNRM, 83%, six projects) and lowest for agriculture policy and production (60%, 52 projects). The water-based natural resource management subsector group had a success rate of 74% with 19 projects. Irrigation, drainage, and flood protection reported a success rate of 62%, with 26 projects. Rural water, sanitation and hygiene, had a 71% success rate with seven projects.

When disaggregated, the evaluated portfolio was dominated by four of the 17 individual subsectors, representing 63% in terms of their dollar value. These were: water-based natural resources management (19 projects, \$719 million); agriculture policy, institutional and capacity development (16 projects, \$886 million); agriculture production (15 projects, \$968 million);

and irrigation (15 projects, \$825 million). Other smaller subsectors included forestry, land-based natural resource management, agricultural research and application, livestock, rural flood protection, and rural sanitation.

Of the major subsectors, the lowest performing was the irrigation subsector, with a 47% success rate. This is of concern given irrigation's overall importance for the sector, at 30% of the portfolio, and its potential contribution to productivity gains. The less than successful irrigation projects were mainly in Southeast Asia and Central and West Asia. The reasons for the poor performance in this key infrastructure subsector vary from country to country, although there were some persisting themes. Poor design and insufficient provisions for operation and maintenance were common and these issues require greater attention at appraisal. In addition, the lack of agricultural, policy and institutional content in the early irrigation projects often compromised their effectiveness. Giving the recent expansion of the subsector, this low performance is a concern for the ANRRD portfolio.

Relevance was consistently the highest rating criterion and sustainability the lowest. Relevance overall was 84% and was consistently above 80% for all subsector groups. Effectiveness averaged 60% overall, with LBNRM standing out at 83% and rural water, sanitation, and hygiene the lowest at 43%. Other subsector groups averaged about 60%. Efficiency was 70% overall, with LBNRM leading with 83%, and lowest for agriculture policy and production at 65%. The others all recorded efficiency above 70%. Sustainability was the lowest rated criteria overall at 55%. It was also the most variable: irrigation lagged at 44% and rural water, sanitation, and hygiene and LBNRM were both over 80%.

A number of factors contributed to low sustainability. They were consistent across the different subsectors, with the individual project assessments citing poor or inadequate: (i) government funding, (ii) government capacity and project ownership, (iii) beneficiary funding and project profitability, (iv) beneficiary capacity and commitment, (v) quality of works, (vi) institutionalization of interventions, and (vii) existing institutional or policy environment. It should be noted, however, that these determining

factors were largely focused on the sustainability of the investment and did not consider the medium- to longer-term availability and reliability of the underlying water resource.

ANRRD success rates varied across regions, with South Asia (81.5%) led by Nepal, and East Asia (80%) led by the PRC. ANRRD projects in the Pacific and Central Asian regions were less successful than those in other regions and also than the ADB average during the same period. Indonesia had the greatest number of successful projects (11 out of 14). Pakistan had the largest number of less than successful projects (7 out of 12). The success rates in the case study countries also varied widely, from 100% for the PRC (eight out of eight), 70% for Bangladesh (seven out of 10), 50% for Tajikistan (two out of four), and 20% for Cambodia (one out of five).

Overall, ADB's ANRRD performance is similar to that of other multilateral financial institutions. All multilateral financial institutions evaluate projects using similar criteria, although there are differences in the way they arrive at an overall rating. The evaluation compared the ratings of ADB, IFAD, and the World Bank in Asia in the agriculture sector for the 2005–2017 period. When comparing overall success rates, the World Bank performed slightly better than ADB. IFAD performed best. A partial explanation for this is that IFAD appears to have been better able to tailor its quality at entry and supervision and implementation support approaches to addressing the constraints (e.g., weak institutions) inherent in the sector.

Results (Contribution to Outcomes)

The results achieved in ANRRD have been limited overall—modest for productivity, better for natural resource management, positive for smallholders but at a limited scale, and not fully realized yet through value chains. The achievement of results was based on a review of evaluative evidence and the four country case study assessments. The outcome themes that were assessed, which underpin the assessment of ADB effectiveness in the sector, were (i) increased agriculture and water productivity, (ii) integrated value chains, (iii) improved smallholder livelihoods (including gender equity), and (iv) enhanced

sustainability and resilience of food systems and natural resources.

ADB's contribution to increased agriculture and water productivity has been significant in terms of the lending volume but modest with respect to results. Almost 70% of ANRRD projects contributed to improving agricultural productivity, but more than 70% of them were focused on rehabilitation and the development of water infrastructure primarily for irrigation and drainage. Delivery of sufficient water to farmers in a timely manner is a critical potential contribution to agricultural productivity that ADB focuses on; however, complementary support for extension services and adaptation to climate change is also needed to maximize and sustain results. Where ADB investments combined water management infrastructure with agricultural advisory support, the impact was greater, as in the Bangladesh Participatory Small-Scale Water Resources Sector Project and its predecessor, the Small-Scale Water Resources Development Sector Project—although this can take time and will require continued efforts for results to be manifested and sustained. Greater use of remote sensing technologies and impact studies with control groups would help to better characterize and evaluate the actual causal links between investment project inputs and results.

The ADB contribution to key links in agricultural value chains has focused on input supply and production. Again, this has mainly been through infrastructure. Few projects specifically targeted value addition, high value markets, or work with consumers. Rural infrastructure interventions (e.g., rural road improvements) are increasingly focused on support for market links, which could be a comparative advantage of ADB and an entry point in supporting agricultural value chains more broadly. Few projects addressed policy constraints; of the 16 evaluated projects tagged as supporting policy and institutional capacity, only five made a substantial effort to address these constraints. More recently approved loans, such as the Shanxi Inclusive Agricultural Value Chain Development Project in the PRC, however, introduced a more comprehensive value chain approach, including extensive analysis at design, and thus provided a useful model for such operations in future. The nonsovereign ANRRD operations approved by ADB supported

agribusiness and also had considerable value chain content. However, these operations often suffered from a lack of technical, agricultural policy and institutional content.

An important feature of the value chain approach in agricultural investment projects is the combination of public and private actors. Sovereign projects have only recently begun reaching out to the private sector. Coordinated projects between regional departments and PSOD have yet to come to fruition, however. A missed opportunity for potential collaboration between sovereign and nonsovereign operations came from the Cambodia country case study in the form of the Spice Value Chain Development Project, which could have benefited from ADB's experience and ongoing sovereign operations in the same area. In addition, the World Bank and International Finance Corporation reported significant benefits from this type of public-private collaboration, resulting from joint analysis and preparation of jointly financed projects in agriculture.

ANRRD projects promoted inclusive growth and supported smallholder development but they require greater replication and upscaling. About 59% of ANRRD projects targeted beneficiaries directly. Many of the community-based projects, although small and limited in number, performed well. The community and poverty alleviation focus often provided a range of important outputs for development (e.g., small-scale infrastructure, access to microcredit, and capacity building). Few projects to date sought to commercialize smallholders or establish better off-farm linkages, making small farmers active participants in the value chains. However, there were exceptions, including a number of the PSOD agribusiness projects with outgrower schemes. From the country case studies, the PRAN Agribusiness Project in Bangladesh illustrated a potentially useful approach. This worked with a pro-poor crop, cassava, although the number of its beneficiaries was less than anticipated. Activities that aimed at increasing the income of smallholders often fell well short of expectations, often because of difficulties in determining the correct baseline and setting realistic final indicator targets, such as the number of beneficiaries, in the design and monitoring framework.

ADB projects contributed positively to the protection and resilience of natural resources, both for their own intrinsic value and for the ecosystem services they provided, including support for agriculture. ANRRD projects have likewise contributed positively to natural resource management and climate resilience through conservation farming and reforestation, rehabilitation and development of rural infrastructure, structural and non-structural flood protection and management, resettlement, environmental management, and development of stronger institutional capacities. ADB administration of Global Environment Facility cofinancing has provided important support for targeting natural resource outcomes, especially in the PRC. In Tajikistan, ADB's focus on improving climate resilience has been an important stimulus for reengaging with the sector. However, these results will need to be maintained and enhanced to safeguard the land and water resources required for sustainable agriculture and food security.

Some investments are delivering positive development results, but not necessarily in a way that contributes directly to sustainable agriculture and food security. Rural water supply and sanitation projects in the portfolio performed well and provided important services for the rural population but had less tangible links to sustainable agriculture and food security. Some important urban–rural projects, primarily in the PRC, were well-conceived investments that addressed real needs, mainly to tackle urban point source pollution, with positive gains for downstream ecosystems. However, implementation of these projects may be better undertaken by the urban water division of ADB, which may have access to more resources and more appropriate skills.

Policy dialogue has been limited and nonlending activities have not been well aligned with investment lending. Dialogue with the government and other stakeholders has been used to support innovation and emerging areas, but it has been limited as ADB international staff are largely headquarters-based and focused primarily on loan processing. TA is an important instrument to address capacity constraints, investigate new or innovative technologies, and produce stand-alone knowledge products. But

many TA outputs are not clearly aligned with or sufficiently sequenced to support ADB's ANRRD investments. For example, the innovative work that has been done as part of the biodiversity support in the GMS has only been mainstreamed into ADB operations in a limited manner.

Appropriateness of ADB's Approach, Delivery, and Resources

ADB's approach, delivery, and resources have been inadequate to meeting the overall goal of sustainable agriculture and food security. Water-related infrastructure has dominated, reflected in the strategic guidance, staffing, and portfolio of the sector at ADB. However, a sector as complex as ANRRD warrants a more holistic approach, supported by resources and staff skills that contribute more fully to the policy environment and to the complete agriculture value chain, including public and private sector components.

ADB's ANRRD staff, numbering 63 as of July 2018, are currently organized in five regional department divisions and a small central unit in the Sustainable Development and Climate Change (SDCC) Department, with water resources as the dominant area of expertise. In 2015, an agribusiness investment unit in PSOD was established and this now has six staff. ADB lost a number of agricultural specialists after the agriculture portfolio began to decline in the 2000s and Strategy 2020 relegated agriculture to a noncore area. The decline was particularly significant in the Central and West Asia region, which temporarily closed its Agriculture, Environment and Natural Resources Division in 2010. There are presently considerably more international water resource specialists (65%) in the regional department divisions than agricultural specialists (35%). The majority of ANRRD international staff work at ADB headquarters with eight staff located in seven resident missions.

The key institutional gap for ANRRD is in skills and numbers of staff. A staff survey noted that only 16% of staff agreed that the number and skills mix of ANRRD staff were well-aligned with ADB's program in these sectors. The shortfall in skills is currently bridged through the use of consultants and TA resources. Collaboration or synergy across the regional divisions and with the agricultural

team in PSOD appears to be generally lacking. Some 16% of survey respondents from HQ agree that effective coordination and collaboration exist between the ANRRD divisions and the Private Sector Operations Department.

Staff survey results showed mixed levels of satisfaction with the Rural Development and Food Security Thematic Group. Of the headquarters-based respondents, 44% reported that operations staff engaged with the Thematic Group frequently. Most of the value addition of these engagements comes from generating, identifying, and disseminating knowledge.

Assuring quality at entry of ANRRD operations and supervision of technical issues need greater attention. Out of the total respondents, 14% of headquarters staff and 32% of resident mission respondents reported having adequate time to ensure high-quality project supervision. Related to design quality, 33% of headquarters, and 48% of resident mission respondents rated the quality of the design and monitoring frameworks satisfactory. This concern for project design is consistent with ADB's own quality-at-entry reviews conducted in 2010, 2012, and 2014.

Lessons

Support for basic infrastructure alone is not sufficient to address the complex and evolving challenges for agriculture and food security in Asia and the Pacific. ADB is reengaging in the sector at a critical time for agriculture in the region, which presents tremendous opportunities and challenges. ADB's traditional assistance for basic infrastructure has been an important input to agricultural production and food security. Timely and efficient delivery of water continues to address key infrastructural needs for the region. But support now needs to be viewed more holistically, and to recognize issues beyond production. As agricultural systems are increasingly centered on value chains, private sector actors are taking on greater influence and responsibility, which will have implications for ADB's approach to ANRRD.

Responsiveness is better when strategies and investments reflect the gaps and needs in agriculture, natural resources, and rural development in Asia and the Pacific. Available

natural resources, climate, technology, infrastructure, institutional capacity, political economy, private sector enabling environment, and agricultural priorities all vary across the region. ADB responses should reflect this heterogeneity in gaps and needs.

Recognition of weak institutional capacity, difficult context and complexity of the sector in planning and design of ANRRD projects improves performance. Agriculture and natural resources is a complex sector, involving numerous stakeholders and institutions with variable capacities. Projects are often implemented in remote areas, which has consequences for effective project design, implementation, and ultimately to the achievement of outcomes. Sustained institutional capacity development and stakeholder engagement over a sufficient duration is required for the full benefits of investments to accrue.

Strategic partnerships to complement ADB's comparative advantage in infrastructure development can help maximize development outcomes. Partnerships with relevant development agencies and recognized centers of excellence in the areas of smallholder support, the value chain, and agribusiness development help maximize development outcomes. But these partnerships should not be seen as a reason to limit ADB's engagement in infrastructure. Rather, such partnerships are an opportunity to strengthen operational effectiveness, knowledge development, and skills development within ADB.

The use of remote sensing and other space-based technologies can support better tracking of expected outcomes. Space-based technologies can be used to supplement ground-level work to support diagnostic work, establish baselines, set targets, and monitor and evaluate outcomes.

Key Issues

External

Numerous external factors, such as trade policy, access to finance, and competing users of natural resources, negatively impact and add to the risk and complexity of agricultural investments. Agriculture does not operate in a vacuum. For example, the sector must compete with other

water users across a river basin and these users may impair the quality and quantity of this resource for downstream use. Growing urbanization and industry in the region can result in environmental degradation of soil and air quality, with impacts on agricultural yields and food quality. The transport, energy and finance sectors all provide essential infrastructure and services that support agriculture, and the private sector plays an increasingly central role. Government expenditures, policies, e.g., input subsidies, can either be an incentive for or a constraint on the development of the sector. ANRRD investments must be complemented by policy diagnosis and dialogue and designed to take account of related sectors and policies, so negative impacts can be mitigated and synergies identified.

Climate change impacts are highly detrimental for ANRRD given the importance of climatic conditions for agriculture and the natural resource base. Agriculture is the predominant user of water across the region and water-related stresses, including floods and droughts, are among the most significant impacts of increasing climate variability and change. Climate impacts directly on agricultural outputs and on the natural resources and ecosystems that agriculture depends on. It is critical that ADB investments in ANRRD support greater resilience through improved agricultural practices and ecosystem-based adaptation.

Internal

ADB's operational plans do not provide sufficient strategic guidance and clarity. The greater emphasis ADB has given to agriculture after the 2007–2008 food price crisis continued with the Midterm Review of Strategy 2020, which recognized the sector's role in reducing poverty and promoting inclusive growth. However, both operational plans were limited in terms of their guidance for agricultural operations, particularly in relationship to value chains and private sector development and their evaluability. There may be a need for a new plan both for the priority area and the sector.

ADB has not provided sufficient support for agricultural policies or for engagement with the private sector. Basic infrastructure has been the

principal focus of ADB support in the past. By contrast, ADB has not engaged consistently in sector policy analysis and dialogue. The nascent, but growing, agribusiness portfolio is a good start, but such investments need to be ramped up and integrated more closely with public policy and other sectoral interventions, and with ADB's sovereign activities.

Although ADB has been meeting its \$2 billion annual approval target for ANRRD and food security, an ADB-wide approach is lacking. The tracking of the non-ANRRD projects that contribute to ANRRD and food security was inconsistent and, in some cases, their contribution to food security was very indirect.

The ADB portfolio in many countries is not fully responsive to the range of needs and the application of innovation has been limited. The largest share of ADB ANRRD investment goes to the PRC, in a diversified portfolio; but in other regions, ADB's approach has a narrower focus. For example, other development partners provide greater support for South Asian countries, given the prevalence of poverty, food insecurity, and malnutrition. ADB support for innovation has been limited in scale and ADB has lacked a coherent approach to replication and upscaling.

ADB's staff composition for sustainable agriculture and food security has not been sufficient to match the growing ambition of the operational plans and Strategy 2030. The scaling back of agriculture as a strategic focus led to fewer agriculture specialists and more water resource specialists. While both are critical to the sector, this has implications for the future as there is demand for more subsectors (livestock and fisheries) as well as a greater need for agricultural policy analysis and dialogue as well as work in value chains and private sector development.

ADB does not have sufficient cross-departmental or cross-divisional cooperation to deliver sustainable agriculture and food security. ANRRD operations occur with the Environment, Natural Resources, and Agriculture Divisions of ADB regional departments. However, greater input is also needed from the Private Sector Operation Department and relevant public financial management divisions. The ANRRD Thematic Group, on its own, cannot deliver the Strategy

2030 rural development and food security priority area. Under Strategy 2030, ANRRD will be only one of the sectors contributing to the rural development and food security priority area, albeit a critical one. The ANRRD Thematic Group should focus on agriculture and its various subsectors, including agribusiness and value chains and policy. Complementary plans from other key sectors will be necessary to address the priority area in the whole.

Conclusions

Agriculture continues to play a critical role in the growth and transformation of countries in Asia and the Pacific and warrants ADB's sustained engagement for further growth, poverty reduction and delivery of the Sustainable Development Goals. Although agriculture is a declining share of GDP, it is still important in many countries as it employs many of the region's poorest and addresses poverty and food security. Given the close connection between people and the planet, agriculture is uniquely placed to help deliver multiple Sustainable Development Goals. Continued agricultural growth and productivity increases are a priority for the region as the sector faces both persisting and new challenges, including natural resources degradation, climate change and urbanization. It will be critical for countries to establish a conducive policy environment so they can respond to these challenges effectively. As agriculture is largely a private sector activity that is dependent on a viable public sector enabling environment, coordinated and sustained sovereign and nonsovereign engagement is needed if ADB is to support agriculture and the natural resources it depends upon.

ADB's overall support for sustainable agriculture and food security has been significant in terms of lending volume, but modest on results. This assessment is based on the weakness of ADB's strategic guidance, limited development outcomes and inadequate institutional arrangements for delivery. The downgrading of

agriculture to a noncore sector in Strategy 2020 was poorly timed in view of the 2007–2008 food price crisis. Since then, ADB has been rebuilding its support for agriculture and food security and has clarified its strategy in this area. CPSs that addressed ANRRD focused on productivity, market connectivity, climate resilience, and natural resources. However, ADB was slower to address reductions in food losses, food safety, and nutrition, which are priorities for the region. For example, malnutrition is highlighted in data from the Ending Rural Hunger project as a serious issue in several ADB countries, notably in South Asia and Southeast Asia, yet only two CPSs addressed this topic.

Performance improved significantly over the evaluation period, but results were limited. ADB has made substantial and important investments in water-related infrastructure and these contributed moderately well to productivity and water resource management. However, the performance of irrigation, the largest subsector, has been poor, and, overall, sustainability remains a lagging criterion. ADB's support for agriculturally focused subsectors, such as agricultural policy, institutional and capacity development, research, agricultural production and markets, fisheries, forestry and livestock, has declined from about 47% during 2005–2009 to less than 10% in 2014–2017. Positive results in productivity were achieved, in part because of the magnitude of ADB's investments in water-related infrastructure support. However, these gains were limited by the poor performance of the irrigation subsector and reduced focus on on-farm agriculture, policy, and institutional development. ADB has had limited results to date from its small but growing agribusiness portfolio. ADB's staff composition supporting sustainable agriculture and food security has not been sufficient to match the growing ambition of the operational plans. Strategy 2030, which has rural development and food security as a priority area, offers an opportunity to refocus ADB's engagement.

Recommendations

ADB should seek to position itself as a leader in the region for ANRRD, including by strengthening its knowledge and policy work, convening partners and leveraging resources. To do so, ADB should:

Strategic

1. Ensure the new operational priority plan for the rural development and food security priority area of Strategy 2030 recognizes the need for multisector solutions and is underpinned by a revised sector framework for agriculture and natural resources, and a revised sector framework for water, with more detailed guidance and a refined project classification. The operational priority plan should distinguish the roles of the agriculture sector and other sectors in supporting the priority themes of rural development and food security. The agriculture sector should be central, but the plan should also articulate how the other main sectors (finance, public sector management, private sector operations and water) should contribute. A new sector framework is needed for agriculture and natural resources to replace the 2015 ANRRD Operational Plan. The revised corporate target needs to track both agricultural and nonagricultural contributions. To track progress toward rural development and food security targets, the project classification system should be revisited. ANRRD currently has 17 subsectors, some of which are only marginally related to agriculture. Specific operational guidance (e.g., tool kits and good practice notes) should be developed for areas of increasing importance (the value chain and private sector development) and neglected subsectors and regions (e.g., fisheries and the Pacific). At the same time, project classification system, including the 17 subsectors, should be refined and better aligned with the sector's contribution to the priority area.

2. Promote more robust sector diagnostics, through increased technical assistance, to strengthen project pipelines and country partnership strategies that can deliver the Strategy 2030 rural development and food security priority area objectives. CPSs should be better integrated across sectors and themes so

they more fully support rural development and food security. Sector analysis should be enhanced to identify key constraints on development; expanding investments to include areas beyond infrastructure, specifically policy and value chains; reducing food losses; strengthening food safety; and improving nutrition. The CPSs should also reflect a greater role for nonsovereign operations and private sector development.

Portfolio and Operations

3. Increase the attention paid to agricultural activities, policy and institutional reforms, and the private sector to address key constraints on outcomes. Water is an essential input, particularly for crop-based agriculture, but ADB needs to pay additional attention to other activities. More work across the value chain is needed to support rural populations to grow, process, and market crops, livestock and fisheries in response to market needs. The ANRRD sector divisions should coordinate and leverage financial inputs such as microcredit, small and medium-sized enterprise finance, and crop insurance. Expanded programs are also needed to support on-farm activities and to introduce new practices and technologies. ADB needs a more systematic approach to influence policy and strengthen institutions to provide needed services, such as those related to grades and standards, food safety, and trade.

4. For expanding areas of work (e.g., value chains) and core work needing improvement (e.g., irrigation) strengthen up-front diagnostic work, quality-at-entry processes, and supervision for better performance, particularly sustainability, and results at the project level. This will improve the effectiveness and sustainability of ADB-supported investments and help them to respond to the evolving challenges and complexity of implementing ANRRD projects. The evaluation identified a number of issues affecting project performance, particularly related to sustainability and irrigation, that should be taken into consideration during this process. ANRRD project designs are often ambitious given their contexts, remote locations, and the limited capacity of key stakeholders. Key constraints and potential partners in the value chain need to be assessed.

The use of remote sensing and other technologies should be mainstreamed to support ADB analysis.

5. Enhance support for agricultural value chains, through a One ADB approach that articulates collaboration between sovereign and nonsovereign operations. Mechanisms and incentives are needed to support cross-departmental project design and implementation support. Joint project development and supervision by staff working on sovereign and nonsovereign value chain projects is needed, since all such projects will have some combination of public sector, private sector, and farmer elements. Government policy is important to all such operations. Analyzing the value chain and implementation support by ADB will be at the core of all such operations, whether sovereign or nonsovereign. Implementation support by ADB will be important both for sovereign and nonsovereign value chain operations. On the nonsovereign operations side, there is a particular need to increase the agricultural expertise available for implementation support.

6. Maintain attention and improve performance of investments in water infrastructure, where ADB has a comparative advantage, and expand focus on broader water resource management and climate actions. Climate change impacts on water will be amongst the most significant for the region, and appropriate adaptation features should be mainstreamed to improve resilience of the built assets. The historically poor performance of irrigation warrants greater attention to activities that are complementary to infrastructure investments. Similarly, improved sustainability

needs a more serious commitment to associated with institutional capacity, policy and operation and maintenance. Monitoring the efficacy of on-going and future investments that seek to address these historical performance issues, is needed for potential replication and scaling up.

Organization for Delivery

7. Increase ADB's expertise and strengthen the ANRRD staff skills mix. ADB needs to include a more diverse skill set among its staff working on ANRRD and to include skills in policy and institutional analysis as well as agronomist, value chain and private sector development expertise to complement the water experts in regional departments and the investment specialists in PSOD.

8. Expand collaboration and partnerships with recognized centers of excellence to complement current staff resources and supplement skills shortages. Augment ADB infrastructure expertise with complementary strategic partnerships for smallholder support, the value chain, and agribusiness development. For overall sector knowledge, ADB should strengthen its partnerships with the international research centers of the Consultative Group on International Agricultural Research. Operationally, ADB should consider strengthening its engagement with IFAD and the Food and Agriculture Organization. Placing IFAD staff within ADB should be the starting point for a more strategic partnership between the two institutions, including IFAD participation in the ANRRD thematic group.

Linkage Between Findings and Recommendations

Findings and Issues	Recommendations
<p>The future challenges for the sector are changing and becoming increasingly complex. Persistent issues affecting productivity, smallholder inclusion, and food security are complicated by resource degradation and climate change, changing dietary demands, and the organization of production around value chains. (Para. 29–48)</p> <p>The report highlighted the structural transformation process as countries moved from being agriculture-based to becoming increasingly urbanized. As countries transition, the nature and role of agriculture changes in terms of its contribution to the economy and its employment profile. Understanding this process is important as the type of agricultural support needed evolves from a primary focus on production to a broader approach, including value addition and off-farm activities, to modern food markets and agro-industries as well as improved environmental quality and services. Currently most developing member countries have progressed from agrarian to transitioning. (Para. 15)</p> <p>ADB has consistently exceeded the \$2 billion annual approval target for agriculture, natural resources, and rural development (ANRRD) and food security set in the 2009 operational plan. Tracking of investments outside ANRRD that contribute to food security has been inconsistent. While there are 17 subsectors for ANRRD in the Asian Development Bank (ADB) project classification system, at least five have had minimal or no investments over the evaluation period. (Paras. 54 and 58)</p> <p>Rural development and food security actions require input from other sectors beyond ANRRD, including transport, energy, and finance. (Para. 93)</p> <p>ADB operational guidance documents between 2009 and 2017 became more focused and consistent with each other, but the ANRRD-related operational plans lacked the specificity of earlier subsector policies. (Para. 119)</p> <p>Support for basic infrastructure is not sufficient to address the complex and evolving challenges for agriculture and food security in Asia and the Pacific. (Para. 213)</p> <p>Numerous external factors, such as trade policy, access to finance, and competing sectors, add to the risk and complexity of agricultural investments. ADB’s operational plans have not provided sufficient strategic guidance or clarity. The ANRRD Thematic Group, on its own, cannot deliver the Strategy 2030 rural development and food security priority area. (Paras. 218, 220, and 226)</p> <p>A further challenge is that under ADB’s project classification, the number of subsectors included under ANRRD is far greater than those under other sectors, e.g., the transport sector has eight subsectors. More than 50% of ADB support to ANRRD over the evaluation period, in practice, was related to water infrastructure (e.g., irrigation), which is agricultural; another significant portion of the support was for activities pertaining to water supply and sanitation, which do not contribute to agriculture, while another was for water resource management more generally, including at the river basin level and for flood and pollution control. Further, according to the ADB project classification, there are other non-ANRRD subsectors (e.g., finance for small and medium-sized enterprises [SMEs]) that provide essential inputs for agricultural and rural development and food security. (Para. 10)</p>	<p>Ensure the new operational priority plan for the rural development and food security priority area of Strategy 2030 recognizes the need for multisector solutions and is underpinned by a revised sector framework for agriculture and natural resources, and a revised sector framework for water, with more detailed guidance and a refined project classification.</p>
<p>Country partnership strategies (CPSs) systematically address the key thrusts of the operational plans related to infrastructure, but have been slower to identify specific sector challenges or to address other areas important for value chain development. (Para. 121)</p> <p>Generally, the CPSs were slow to include other complementary but necessary activities, (e.g., institutional development, food safety, and agricultural research) that are needed for further agricultural growth and value addition. Likewise, the CPSs generally focused on areas of project investment rather than on the role of nonlending activities such as policy dialogue and partnerships. (Para. 121)</p>	<p>Promote more robust sector diagnostics, through increased technical assistance, to strengthen project pipelines and country partnership strategies that can deliver the Strategy 2030 rural development and food security priority area objectives.</p>

Findings and Issues	Recommendations
<p>In terms of operational plan priorities, the CPSs were generally focused on agricultural productivity, primarily through water-related infrastructure, climate resilience, and/or natural resource management, and connectivity. However, there has been a limited focus on food losses, food safety, and nutrition. (Para. 199)</p> <p>Responsiveness improves when strategies and investments reflect the needs in agriculture, natural resources, and rural development in Asia and the Pacific. (Para. 214)</p>	
<p>Irrigation and water-based natural resources make up more than half of the total portfolio (\$12.2 billion) during the evaluation period. Analysis of project components shows a low share of lending for support directly linked to agricultural productivity, production, and value chains and a high share for irrigation and other water-related infrastructure. The analysis of sovereign operations shows rather limited support for capacity development (about 4.5% of total project cost) and negligible support for policy analysis and formulation. (Paras. 53 and 59)</p> <p>There were no approved nonsovereign operations for 2005–2011 for ANRRD, hence, for 2012–2017, total ADB nonsovereign operations in the ANRRD sector amounted to \$697 million, averaging \$116 million per year. (Para. 70)</p> <p>ADB’s traditional assistance for water-related infrastructure has been a fundamental input to agricultural production and food security. However, support to the sector now needs to be viewed more holistically and to recognize issues beyond production. As agricultural systems are increasingly centered on value chains, private sector actors will take on greater influence and responsibility, which will have implications for ADB’s approach to ANRRD. (Para. 213)</p> <p>Further, the sector is often characterized by weak institutions and low capacity as well as issues around land titling and access to finance, which present additional challenges. (Para. 215)</p>	<p>Increase the attention paid to agricultural activities, policy and institutional reforms, and the private sector to address key constraints on outcomes.</p>
<p>At the country level, the ANRRD sector requires comprehensive upfront diagnostic work, including policy dialogue, to capture this heterogeneity and formulate more nuanced responses through CPSs and project development. (Para. 214)</p> <p>Given the relatively poor performance of the irrigation subsector, its critical importance to the sector and the trend towards substantially more irrigation projects, ADB needs to take action to ensure irrigation performance and particularly the sustainability of project results. (Para. 203)</p> <p>The evaluation identified a number of recurring determinants of sustainability, particularly related to irrigation, that should be taken into consideration. (Para. 140)</p> <p>Recent projects, such as the Madhya Pradesh Irrigation Efficiency Improvement Project, are adopting innovative technical and institutional solutions approaches, including pressurized irrigation systems, and design, build and operate contracts, that may contribute to improved and sustainable results. (Para. 146)</p> <p>Similarly, the Shanxi Inclusive Agricultural Value Chain Development Project included rigorous value chain diagnostics for specific commodities that informed the project design. (Para. 151)</p> <p>Sector plans and project designs need to reflect the sector’s limited institutional capacity, difficult context, and complexity. (Para. 215)</p>	<p>For expanding areas of work (e.g., value chains) and core work needing improvement (e.g., irrigation) strengthen upfront diagnostic work, quality-at-entry processes, and supervision for better performance, particularly sustainability, and results at the project level.</p>
<p>ANRRD investments must be designed to take account of the importance of related sectors and the policies that guide them, so that negative impacts can be mitigated and synergies identified. (Para. 218)</p> <p>Most ANRRD interventions were implemented through the public sector, particularly water ministries. The nascent, but growing, agribusiness portfolio is a good start, but such investments need to be ramped up, integrated more closely with public policy and</p>	<p>Enhance support for agricultural value chains, through a One ADB approach that articulates collaboration between sovereign and nonsovereign operations.</p>

Findings and Issues	Recommendations
<p>other sectoral interventions, and coordinated with ADB-supported sovereign activities in the area. (Para. 221)</p> <p>ADB needs to do more to coordinate the ANRRD staff in the five regional department divisions, the relevant thematic and sector groups in the Sustainable Development and Climate Change (SDCC) Department, and the agribusiness investment unit in PSOD. Greater input is also needed from the public financial management divisions. (Para. 225)</p>	
<p>The world's agriculture currently uses 11% of the world's land, accounts for 70% of its freshwater withdrawals. In addition, climate change and climate variability pose large, but regionally differing, threats to agriculture and food security in Asia through higher temperatures, more extreme weather events, drier conditions in large parts of the region, sea-level rise, and flooding, which will have an impact on crop patterns and yields and cause crop damage. In South Asia, water security is already low, and the region may be disproportionately affected by more frequent and intense droughts and other stresses on water management. Many rivers and lakes in the region are dead or dying, groundwater aquifers are over-pumped, and some species of aquatic life have been driven to extinction. (Paras. 41 and 45)</p> <p>Irrigation and water-based natural resources make up more than half of the total portfolio during the evaluation period. The most significant trend is the sharp, steady decline in the lending for agricultural policy and production and the increase in lending for the water-related subsectors. (Paras. 53 and 57)</p> <p>The irrigation subsector's low performance of 47% is a concern given it comprised 30% of the portfolio over the evaluation period, and this share has been growing significantly over time. ADB's results for activities designed to increase agriculture and water productivity have been significant in terms of volume of resources but modest in results, which take time to fully accrue and appear greatest when delivery of water is combined with on-farm extension support. (Paras. 178 and 179)</p>	<p>Maintain attention and improve performance of investments in water infrastructure, where ADB has a comparative advantage, and expand focus on broader water resource management and climate actions.</p>
<p>ADB lost a number of agriculture specialists after the agriculture portfolio began to decline in the 2000s. This process culminated in Strategy 2020, which relegated agriculture to a noncore area. Interviews with international and national staff indicated that there are currently few technical staff with expertise in specific subsectors such as agronomy, livestock, fisheries, and forestry. (Para. 183)</p> <p>Support to the sector now needs to be viewed more holistically and to recognize issues beyond production. As agricultural systems are increasingly centered on value chains, private sector actors will take on greater influence and responsibility, which will have implications for ADB's approach to ANRRD. (Para. 213)</p> <p>ADB staff working on sustainable agriculture and food security have not been sufficient to match the growing ambition of the operational plans or of Strategy 2030. The scaling back of agriculture as a strategic focus led to fewer agriculture specialists and more water resource specialists. While both are critical to the sector, this has implications for the future as there is demand for ADB support in more subsectors (e.g., livestock and fisheries) as well as greater need for agricultural value chain and policy work. (Para. 224)</p>	<p>Increase ADB's expertise and strengthen the ANRRD staff skills mix.</p>
<p>The operational plans raise important issues such as regional public goods, technology and innovation, and partnerships, but provide little guidance on how to address them. (Para. 105)</p> <p>Two-thirds of CPSs recognized the importance of partnerships for achieving results, given the diversity and depth of challenges. However, the CPSs lacked details on how partnerships would be pursued and synergies achieved. (Para. 113)</p> <p>Strategic partnerships that complement ADB's comparative advantage in infrastructure development will help maximize development outcomes. (Paras. 143, 176, and 215)</p>	<p>Expand collaboration and partnerships with recognized centers of excellence to complement current staff resources and supplement skill shortages.</p>

Management Response

On 15 November 2018, the Director General, Independent Evaluation Department, received the following response from the Special Senior Advisor to the President on behalf of the Management:

1. Management thanks the Independent Evaluation Department (IED) for undertaking this thematic study on ADB's support for Agriculture, Natural Resources, and Rural Development (ANRRD) covering the period 2005 to 2017. The theory of change approach was used to conceptualize how the sector contributed to the overall goal of sustainable agriculture and food security and how ADB supported ANRRD to promote food security in the Asia and Pacific region. Emphasis was placed on the period since 2008 following the adoption of ADB's Strategy 2020, and analysis was guided by the Operational Plan for Agriculture and Natural Resources 2015–2020.
2. Management has closely followed the progress of this study including the series of IED consultations with the operations departments, resident missions and representative offices, and other relevant offices. This is part of IED's new series of sector-wide evaluations and thus, is timely considering that rural development and food security is one of seven operational priorities in ADB's new Strategy 2030. Three key takeaways from the report are:
 - a. success rate of ANNRD projects was on par with the ADB average during the evaluation period;
 - b. performance of ANNRD projects has steadily improved since 2010; and
 - c. ADB's ANNRD performance is similar to that of other multilateral development banks.
3. Before we respond to the eight recommendations, we would like to offer a few comments on the evaluation report.

Comments

4. **Sustainability of irrigation operations.** While Management agrees that ADB will “maintain attention and improve performance of investments in water,” the report could have reflected the actions already undertaken to address key issues affecting the performance of irrigation projects. For example, the results-based loan to Indonesia (2017) focuses on an integrated participatory development and management of irrigation program. And the design-build-operate contracting modality for the India irrigation efficiency project in Madhya Pradesh (2018) aims to tackle the poor operation and management (O&M) on irrigation and other institutional and capacity constraints which led to the unsustainability of irrigation projects. These are among recent projects that have built on lessons learned and have adopted innovative technical and institutional solutions to improve irrigation performance. The report could have also looked beyond the project performance ratings to reflect irrigation efficiency gains and on-farm improvements through the adoption of new technologies. Recent irrigation projects have been placing greater emphasis on command area development, high efficiency irrigation, support for farmer-managed organizations, and investments in institutional transformation through integrated resources management and establishment of river basin organizations.
5. **Criteria to determine O&M.** We would like to clarify that the criteria of irrigation project evaluation require review. The current evaluation criteria—to rate an irrigation project less than successful when estimated O&M budget is not allocated—is not a realistic assessment of project sustainability. A great majority of irrigation projects in the region are gravity fed. There are no standardized guidelines in

place to estimate O&M cost and different countries use different yardsticks. For O&M, project-specific funds are not always required particularly in the first few years of operation because the existing staff and facilities of the agency are sufficient to keep the rehabilitated/improved system operational. That is why most irrigation systems work reasonably well during their economic life (20–25 years) even when required O&M budget is not allocated as per estimates. There are also examples of irrigation systems from the region where substantial benefits materialize over long periods even after economic life of the project has expired. So, the situations are complex and involve more than merely estimating the O&M costs. Given the critical concerns of sustainability in irrigation systems, the Sustainable Development and Climate Change Department (SDCC) would like to work with IED to undertake an in-depth review with a sample of irrigation projects to better understand the phenomenon and to develop robust mechanisms to assess O&M costs and their financing.

6. **Policy support and engagement with the private sector.** We agree that enabling policy is important for private sector engagement in agriculture sector. This is the area where ADB has been working closely in country and at subregional level. The report could have elaborated the many ongoing initiatives that ADB has undertaken in Southeast Asia, such as the Greater Mekong Subregion (GMS) Core Agriculture Support Programs. For example, in September 2017, the GMS Agriculture Ministers endorsed the strategy to promote safe and environment-friendly agro-based value chains in GMS and the related Siem Reap Action Plan 2018–2022 to prioritize (i) harmonized standards, practices and policies for effective production, trade, and investments in safe and environment-friendly agriculture product value chains; (ii) strengthened infrastructure; (iii) improved systems for generating, sharing, and disseminating knowledge and innovations; and (iv) effective marketing approaches for promoting GMS as a global leader in safe and environment-friendly agriculture product value chains.

7. **One ADB and agricultural value chains operations.** We appreciate that the report gives emphasis on ADB's stepping up effort to support agriculture value chains. This is one area where the One ADB approach will continue to be actively pursued, especially between the sovereign and non-sovereign teams. We are also taking multi-country initiatives. A good example of the multi-country One ADB approach with increased focus on value chains is the trilogy of agribusiness value chain projects valued at \$235 million in Cambodia (\$141 million), Lao People's Democratic Republic (\$47 million) and Myanmar (\$65 million). The project aims to enhance agricultural competitiveness in selected regions along the GMS transport corridors. In Uzbekistan, integrated horticulture value chain development projects (\$349 million) improve access to market-based bank finance while leveraging private sector financing sources from horticulture enterprises (farmers, agro-processing enterprises, owners and operators of cold storage facilities, and trading and logistics service suppliers). In Afghanistan, the horticulture value chain project (2018) will increase the value addition for horticultural commodities and contribute to increasing the supply of horticulture products for domestic consumption and export. These projects support Strategy 2030 operational priorities including promoting rural development and food security; tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability; and fostering regional cooperation and integration.

8. **Increased ANRRD engagement in the Pacific.** Management recognizes the limited direct involvement in ANRRD in this region during the period of the evaluation. Addressing critical binding constraints of connectivity infrastructure deficit, building climate resilience, and working on the enabling policies through the Pacific Private Sector Development Initiative has been the focal areas of ADB operations in the Pacific. The report could have cited ongoing sovereign interventions in the Pacific that have indirect engagement to ANRRD, such as the logistics platform development for agriculture produce under a road project and protection of marine ecosystems under a climate change project in Papua New Guinea (PNG), public sector management for marine protected areas in Kiribati, and promotion of coffee development in Timor-Leste. The nonsovereign project with Olam International (2018) includes investments in the coffee and cocoa value chains in PNG, the coffee value chain in Timor-Leste, and technical assistance to farmers in both countries.

9. **Gender equality.** Management welcomes the analysis in the section “Performance and Results” of improved small-holder livelihoods. We agree with overall evaluation that gender mainstreaming resulted in positive outcomes “with scope for more.” The analysis of gender equality provided only under “smallholder livelihoods” subsector limits the evaluation of ADB’s gender mainstreaming efforts in integrated value chain development which produced positive results in both sovereign and nonsovereign operations. Similarly, ANNRD’s focus on “off-farm” activities does not imply less relevance to gender equality. Rural-based off-farm entrepreneurship and value chain development are already providing significant opportunities (though with some challenges) for women in rural areas.

Recommendations

10. Overall, Management supports the recommendations of the evaluation. Specific feedback for each recommendation is presented below:

11. **Recommendation 1:** Ensure the new operational priority plan for the rural development and food security priority area of Strategy 2030 recognizes the need for multisector solutions and is underpinned by a revised sector framework for agriculture and natural resources, and a revised sector framework for water, with more detailed guidance and a refined project classification

Management agrees. The need for multisector solutions is recognized as underpinned in Strategy 2030. A new Operational Plan for Rural Development and Food Security, 2019–2024 is being prepared to provide strategic guidance on all aspects of ANNRD. Refinement of project classification is underway as a broader corporate initiative.

12. **Recommendation 2:** Promote more robust sector diagnostics, through increased technical assistance, to strengthen project pipelines and country partnership strategies that can deliver the Strategy 2030 rural development and food security priority area objectives

Management agrees. Increased technical assistance for sector research and diagnostics, scoping studies for potential investments, upscaling of pilots, knowledge sharing, and learning will enable operations to increase country-level engagement to strengthen project pipelines and country partnership strategies in support of rural development and food security.

13. **Recommendation 3:** Increase the attention paid to agricultural activities, policy and institutional reforms, and the private sector to address key constraints on outcomes.

Management agrees. ADB will further emphasize and leverage its experience and synergies on policy dialogues leading to reforms. This will be considered a key outcome of operations.

14. **Recommendation 4:** For expanding areas of work (e.g., value chains) and core work needing improvement (e.g., irrigation) strengthen up-front diagnostic work, quality-at-entry processes, and supervision for better performance, particularly sustainability, and results at the project level.

Management agrees. ADB will further strengthen different aspects of project cycle.

15. **Recommendation 5:** Enhance support for agricultural value chains, through a One ADB approach, that articulates collaboration between sovereign and nonsovereign operations.

Management agrees. The One ADB approach is demonstrated through the complementarity of sovereign and nonsovereign operations. Both have different roles to support activities on the ground.

16. **Recommendation 6:** Maintain attention and improve performance of investments in water infrastructure, where ADB has a comparative advantage, and expand focus on broader water resource management and climate actions

Management agrees. These are ADB's focus areas already.

17. **Recommendation 7:** Increase ADB's expertise and strengthen ANRRD staff skills mix.

Management agrees. As part of the preparation of new Operational Plan for Rural Development and Food Security, 2019–2024, the need for more ANRRD staff with appropriate skills mix is being assessed.

18. **Recommendation 8:** Expand collaboration and partnerships with recognized centers of excellence to complement current staff resources and supplement skill shortages.

Management agrees. ADB already has active/formal collaboration with the International Rice Research Institute, International Fund for Agricultural Development, International Food and Policy Research Institute, International Atomic Energy Agency and other research institutions in ongoing ANRRD operations. Collaboration and partnerships with development partners and other relevant stakeholders will be further highlighted in the new Operational Plan for Rural Development and Food Security, 2019–2024 to complement/supplement ADB operations on-the-ground, undertake sector diagnostics, conduct and upscale pilots, and improve knowledge sharing and learning.

Chair's Summary: Development Effectiveness Committee

The Development Effectiveness Committee considered the Independent Evaluation Department report, Sector-wide Evaluation for ADB Support for Agriculture, Natural Resources, and Rural Development (IN.412-18) on 22 November 2018. The following is the Chair's Summary of the Committee discussion:

1. The Development Effectiveness Committee (DEC) discussed the sector-wide evaluation of the Independent Evaluation Department (IED) on ADB Support for Agriculture, Natural Resources, and Rural Development (ANRRD), which assessed ADB's ANRRD support amounting to around \$12.2 billion, representing 2%–12% annually of total ADB support for 2005–2017 (evaluation period), including sovereign loans and grants (\$11.1 billion), non-sovereign operations (\$730 million), technical assistance (TA) (\$240 million), and regional TA (\$120 million).

2. **IED Findings and Recommendations.** IED found that ANRRD projects' success rate of 64.5% was at par with ADB average of 64.9%. During the evaluation period, ANRRD's major sectors performed as follows: (i) land-based and water-based natural resources management projects had success rates at 83% and 74%, respectively; while agriculture policy and production projects had 60% success rate; and (ii) irrigation projects (comprising 30% of ANRRD portfolio over the evaluation period) had the lowest success rate at 47%. IED also noted the steady decline in lending for agricultural policy and production subsector from 47% in 2005–2007 to 8% in 2014–2017, and an increase in support for the water-related subsector from 50% to 80% over the evaluation period.

3. IED reported mixed results in ANRRD projects: (i) Agriculture and water productivity projects had significant ADB support, with modest results; (ii) ANRRD projects improved smallholder livelihoods (and gender equity) on a small scale; (iii) ANR projects enhanced natural resource management and climate change resilience; and (iv) Few ANR projects were designed around an entire value chain of an agricultural product since the value chain approach was new to ADB.

4. The report recommended that ADB: (i) revise the sector frameworks for ANR and water, provide more detailed guidance and refine project classifications; (ii) promote more robust sector diagnostics, through increased TA, to strengthen country partnership strategies (CPS); (iii) increase focus on agriculture, agricultural policy and institutions; (iv) strengthen quality-at-entry processes and supervision for better performance; (v) enhance support for agricultural value chains through collaboration between sovereign and non-sovereign operations; (vi) improve performance of water infrastructure and expand focus on broader water resource management and climate actions; (vii) increase its expertise and strengthen ANRRD staff skills mix; and (viii) expand collaboration and partnership to complement current staff resources.

5. **Management Response.** Management welcomed IED's evaluation, with three takeaways: (i) success rate of ANRRD projects is on par with ADB average during the evaluation period; (ii) ANRRD projects' performance improved since 2010; and (iii) ADB's ANRRD performance is similar to other

multilateral development banks (MDBs). Management clarified that the evaluation of irrigation projects with 47% success rate due to low allocation of operation and management (O&M) budget does not necessarily mean that the projects are not delivering the intended benefits, citing the Chasma Right Bank Irrigation project's impact on population, household income, and crop intensity. Management also cited the change in the current irrigation portfolio from an institutional and technical perspective (e.g., Performance-based contract for O&M, results-based lending irrigation project, and use of remote sensing technology), which directly responds to sustainability issues mentioned in the report.

6. Management pointed out that the real challenge was not food security, but food safety and nutrition, which are at crisis levels. It also mentioned the challenge of helping smallholder farmers integrate to modern agriculture and agricultural value chains (without major social disruptions).

7. Management agrees with the recommendations of the evaluation, citing the following actions: (i) ADB is preparing a new Operational Plan (OP) for Rural Development and Food Security, 2019–2024 to provide strategic guidance; (ii) ADB is refining project classification as part of a broader corporate initiative; (iii) ADB will further emphasize and leverage its experience and synergies on policy dialogues and reforms; (iv) ADB will further strengthen different aspects of the project cycle; and (v) Collaboration and partnerships will be highlighted in the new OP.

8. **DEC Discussion and Comments.** DEC thanked IED for the well-written report, noting the inclusion of a new section in the executive summary, i.e., Linkage between findings and recommendations, with the expectation that IED will make this section constant in future reports.

9. DEC members commented on the performance metrics used in the evaluation and asked IED to consider describing performance in neutral terms instead of using the current normative language (i.e., using ratings to measure success). IED explained that MDBs use a harmonized system to evaluate performance—relevance, effectiveness, efficiency, and sustainability for sovereign projects; and profitability, economic return, private sector contribution and environmental, and social implications for non-sovereign projects.

10. DEC strongly supports the report's recommendations and noted Management's agreement to the same, encouraging Management to provide sufficient detail in its response about how it will implement the recommendations to enable the DEC/Board to reach a judgement whether the agreed recommendations will be effectively addressed.

11. **Recommendation 1.** DEC encouraged Management to consider recommendation 1 in preparing its new OP for the rural development and food security priority area, with relevant indicators and carefully considered action plans. Management will incorporate into the OP policy support work for members to create dynamic policy and regulatory environment, and seek to encourage more interest/employment in the sector by enabling members to make farming profitable. As a concrete example, Management cited ADB's support for People's Republic of China's rural vitalization strategy until 2022 (a holistic strategy that will support rural wastewater, sanitation, energy, health, education and adoption of high-level technologies for rural development) that involves collaborating with the World Bank and other development partners, including the private sector.

12. DEC noted the structural transformation of developing members in the region (e.g., People's Republic of China) and the decreasing contribution of agriculture to member's growth, and asked Management to consider a strategic shift in using the annual \$2 billion ANRRD investment target towards making ANRRD a source of growth, not just livelihood.

13. **Recommendation 2.** DEC noted the need for both robust sector diagnostics and increase in TA support (especially with the sharp decline in average annual TA support for ANRRD from 2010–2013 to 2014–2107 due to the decrease in bilateral support). DEC reminded that inclusion of ANRRD in CPSs

should be selectively exercised in light of the country-specific approach of Strategy 2030. IED clarified that ANRRD sector diagnostics will need to be made prior to the CPS process in countries where ADB will work in the sector, and require staff resource (from Private Sector Operations Department [PSOD] and sector divisions) and/or TA support.

14. **Recommendation 4.** DEC noted Management's commitment to further strengthen different aspects of the project cycle. As example of its efforts to enhance project readiness and quality-at-entry processes, Management cited Southeast Asia Department's Project Readiness Improvement Trust Fund, which provides grant support for project readiness activities such as detailed engineering designs and other related activities.

15. DEC also noted the report's finding on the irrigation subsector's performance. IED welcomed Management's proposal to conduct project performance evaluation of irrigation projects to develop robust mechanisms for assessing O&M costs and their funding, delve into the financial, technical/environmental and institutional dimensions of sustainability, and derive better lessons to inform operations.

16. **Recommendations 3 and 5.** DEC recognizes that ANRRD's end users are smaller-scale, private sector businesses, and noted the need to take into account related sectors to agribusiness and crowd in private sector investment to optimize the use of public funds. As concrete example, Management pointed that East Asia Department will have several meetings with PSOD to develop the CPS for People's Republic of China and further expand operation in rural development. Further, ADB has been assisting Greater Mekong Subregion countries to develop agriculture value chain strategies, with ongoing climate-friendly agribusiness value chain projects in Cambodia, Myanmar, and Lao People's Democratic Republic.

17. DEC noted the update from Management on its work to establish mechanisms and incentives to support inter-departmental collaboration (particularly between sovereign and non-sovereign operations). For example, Southeast Asia Department and PSOD are preparing a collaboration framework with discussions to jointly work on agribusiness projects. The collaboration, facilitated by identified focal persons, will be reflected in their performance review. Similar collaboration with PSOD is being undertaken by Central and West Asia Department on wholesale markets in Kazakhstan and Kyrgyz Republic under the Central Asia Regional Economic Cooperation 2030 Strategy.

18. **Recommendation 6.** DEC noted that ANR is the leading sector contributing to climate change adaptation. Linked with recommendation 8, ADB is partnered with the International Rice Research Institute to test climate-resilient (submergence and drought resilient) rice varieties in four member countries.

19. **Recommendation 7.** DEC noted Management's efforts to assess the need for more ANRRD staff (specifically citing agribusiness value chain and agricultural trade as needs areas) with the appropriate skills mix as it prepares the new OP. In pursuing this recommendation, DEC encouraged Management to consider striking a balance with other priority areas that require additional staff resources and its budget implications.

20. **Recommendation 8.** DEC noted ADB's need to partner with institutions that have the skills and academic capacities that will allow ADB to complement its limited TA for research. It also encouraged Management to consider the nature of proposed partnerships and how ADB will support them. As examples of existing partnership, ADB is working with International Food Policy Research Institute to conduct two food security studies for the People's Republic of China and Indonesia.

21. DEC and other Board members also welcomed the use of high-level and digital technology (e.g., remote sensing as project management and monitoring tool, drones, artificial intelligence, big data, etc.) in ANRRD projects to improve productivity.

1

INTRODUCTION, METHODOLOGY, AND CONTEXT



Highlights

The evaluation comes at an important time for the Asian Development Bank (ADB). ADB moved away from agriculture before the 2007–2008 food price crisis. It has recently been reengaging with the sector and its new Strategy 2030 makes rural development and food security a priority area.

A challenge for the evaluation is that agriculture is a sector while food security and natural resources are themes, and rural development is a space. Although agriculture is a primary driver of both, it is often a necessary but not sufficient input for most countries.

The evaluation attempts to determine ADB's success in supporting sustainable agriculture to promote food security in Asia and the Pacific.

Agricultural growth has made a significant contribution to the region's economic development, nutritional improvements, and poverty reduction.

Government commitment, expenditures, and good policies have been essential inputs. Development partner contributions can complement these.

The future challenges for the sector are changing and becoming increasingly complex. Persistent issues affecting productivity, smallholder inclusion, and food security are complicated by resource degradation and climate change, changing dietary demands, and the organization of production around value chains.

A. Overview

1. **This report presents the findings of a sector-wide evaluation of support by the Asian Development Bank (ADB) for agriculture, natural resources, and rural development (ANRRD).** This chapter presents the objectives, organization and methodology of the evaluation, including the theory of change that guides the evaluation. It also describes some important trends and issues in agriculture, food security, and natural resources to set the context of ADB's operations in the region.
2. **The challenges and issues facing agriculture and food security in Asia and the Pacific are changing dramatically.** Rapid economic growth in the region has contributed significantly to poverty reduction, with all ADB developing member countries (except for Afghanistan and Nepal) expected to reach middle to high income status by 2020.¹ The extended period of high growth has greatly reduced the number of people suffering food insecurity, yet stubborn pockets remain, particularly in fragile and conflict-affected situations. Asia remains home to 64% of the world's hungry (about 520 million people) and about 327 million people who are extremely poor or subsisting on less than \$1.90 per day.² Most of the poor still live in rural areas and mainly rely on agriculture and related activities for their income and livelihoods.
3. **New challenges, including natural resource degradation and climate change, have arisen.** Changing diets and population growth will require agricultural production to increase by 60% by 2050. While this is a smaller increase than the agriculture sector has achieved over the past half century, it may be difficult to achieve these gains sustainably. Land and water resources are increasingly stressed, and disease and pests remain a problem.³ A concerted effort will be needed to sustain agricultural growth, as there is little additional land for new cultivation and many countries already have significant irrigation and farm input systems. The Food and Agriculture Organization (FAO) notes that agriculture is a prime connection between people and the planet; it can help countries achieve multiple Sustainable Development Goals (SDGs) related to poverty and hunger as well as providing decent work, growth, environment improvement, and climate action.

¹ ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific. Changing Scenario in Asia and Pacific since Strategy 2020*. Manila.

² Food and Agriculture Organization of the United Nations (FAO), International Fund for Agricultural Development (IFAD), United Nations Children's Fund (UNICEF), World Food Programme (WFP), and World Health Organization (WHO). 2017. *The State of Food Security and Nutrition in the World 2017. Building Resilience for Peace and Food Security*. Rome; and World Bank. 2016. *Poverty and Shared Prosperity 2016: Taking on Inequality*. Washington, DC.

³ FAO. 2012. *World Agriculture Towards 2030/2050*. Rome.

4. **The rural sector is moving from grain and subsistence farming to higher value production and commercialization.** Increasingly, food is being produced within integrated value chains. The demand for food has diversified from a diet mainly based on grain to meat and dairy products, fruits, and vegetables. These changes imply not only shifts in the diet composition (away from staples to non-staples) but also a change in the preferences for food characteristics, including increasing demands for safety, quality, convenience, and organic and processed foods. At the same time, the growth of crop yields has slowed, while food losses and waste remain high, exerting further pressure on traditional agriculture. In response, the food system is becoming more vertically integrated and capital-intensive, which can marginalize small farmers.

5. **This evaluation comes at a critical time for ADB.** Agriculture was deemphasized in ADB just before the 2007–2008 food price crisis. Since then, ADB has reengaged in the sector through its public and private sector agricultural operations. Given the continued importance of agriculture and ADB’s renewed interest in it, this is an opportune time to assess ADB’s experience and inform its emerging agenda. Specifically, the evaluation can help guide operations supporting Strategy 2030,⁴ which gives renewed prominence to the sector, and the next agriculture and food security operational plan.

B. Objectives, Methodology, and Organization of the Evaluation

6. **Given the current issues and challenges facing agriculture in Asia, the objective of this evaluation is to assess ADB’s support for agriculture and food security and to provide guidance for more effective support in the future.** The evaluation assesses performance and identifies determinants of success, good practices, areas of potential comparative advantage, lessons, and recommendations. The sector-wide evaluation covers a 13-year period from 2005 through 2017, emphasizing the period since 2008 following the adoption of Strategy 2020.⁵

7. **The evaluation’s theory of change highlights how ADB’s ANRRD work contributes to the broader goals of ADB on food security and poverty reduction.** The theory of change, presented in Figure 1, maps out the main pathways in which ADB’s support contributes to its overall goals for ANRRD and is used as a road map to guide the evaluation. The theory of change is generally aligned with ADB’s 2009 Operational Plan for Sustainable Food Security in Asia and the Pacific⁶ and the 2015–2020 Operational Plan for Agriculture and Natural Resources⁷ and has an overall goal of sustainable agriculture and food security. ADB provides direct and indirect assistance for agricultural development, supporting both on-farm and non-farm activities. ADB provides direct investments to the ANRRD sector, through regional departments’ Environment, Natural Resources and Agriculture divisions. It invests in infrastructure support for irrigation in order to increase agricultural production and non-infrastructure support that enhances policy, institutional capacity, and related initiatives such as agricultural extension, research and development, and natural resource management in rural areas. ADB also provides assistance to non-ANRRD sectors that can indirectly contribute to agricultural development and food security, such as rural transport, energy, and financial services. The outputs of this ANRRD and non-ANRRD support contribute to outcomes, which support the goals of food security and poverty reduction. A key assumption in the theory of change is that ADB’s support for ANRRD takes into account the country context in terms of policies, capacity and priorities, and that ADB manages to promote synergies between its ANRRD and non-ANRRD work. The evaluation assesses ADB’s ANRRD progress in contributing to the outputs and outcomes identified in the theory of change.

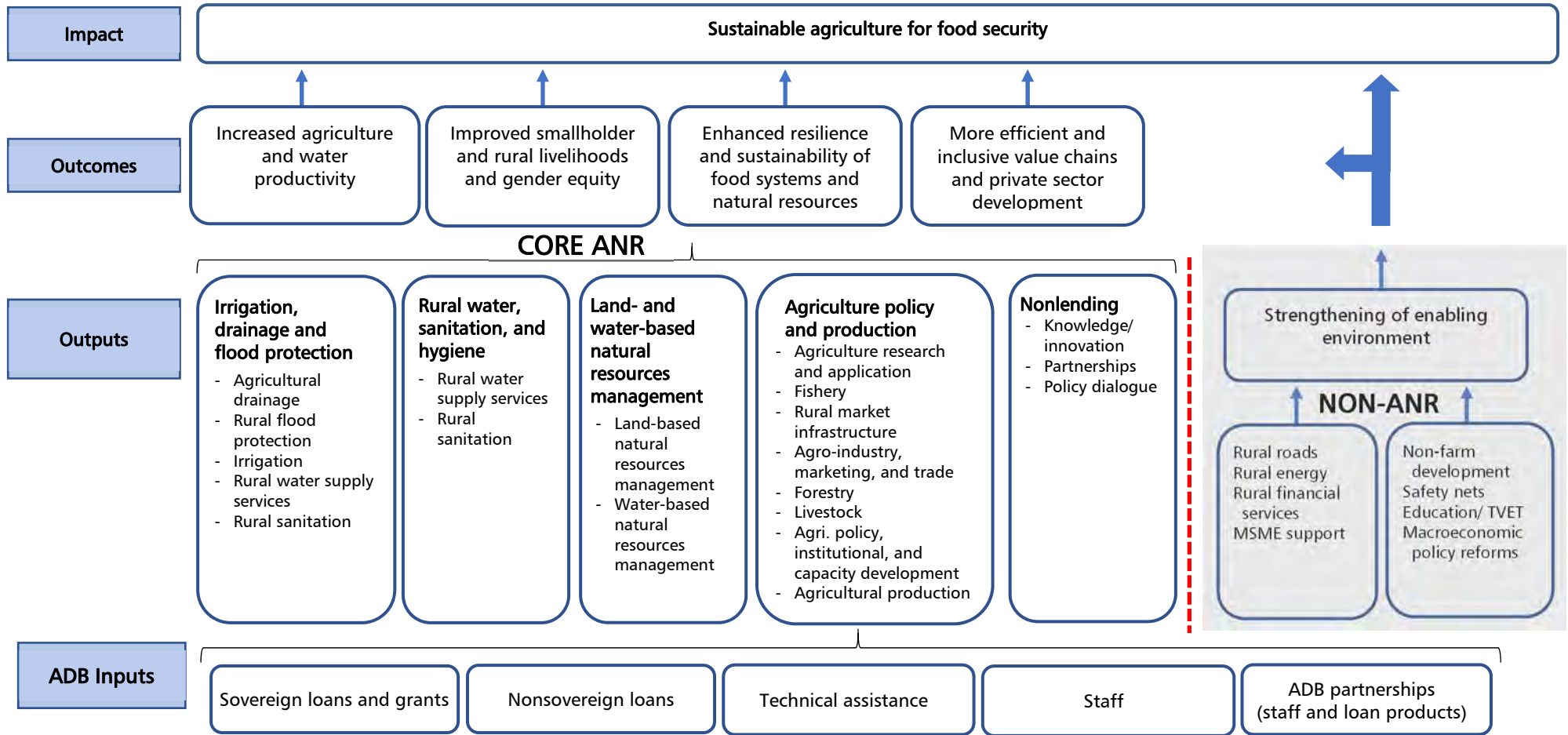
⁴ ADB. 2018. *Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific*. Manila.

⁵ ADB. 2008. *Strategy 2020: The Long-Term Strategic Framework of the Asian Development Bank, 2008–2020*. Manila.

⁶ ADB. 2009. *Operational Plan for Sustainable Food Security in Asia and the Pacific*. Manila.

⁷ ADB. 2015. *Operational Plan for Agriculture and Natural Resources: Promoting Sustainable Food Security in Asia and the Pacific in 2015–2020*. Manila.

Figure 1: Theory of Change



Legend:

- indicates ADB support and high-level impacts that will not be covered in detail or are beyond the scope of the evaluation.
- delineates ADB funding outside ANRRD but still part of the wider enabling environment and food security support.

ADB = Asian Development Bank; ANR = agriculture and natural resources; ANRRD = agriculture, natural resources, and rural development; MSMEs = micro, small, and medium-sized enterprises; TVET = technical and vocational education and training
 Source: ADB (Independent Evaluation Department).

8. **The evaluation focuses on the following overarching question: has ADB been successful in supporting sustainable agriculture to promote food security in Asia and the Pacific?** This question is underpinned by three supporting questions:

- (i) To what extent have ADB's strategies for agriculture and food security been relevant to the needs of the region?
- (ii) To what extent has ADB's support for ANRRD been effective in supporting the following key outcomes: (a) increased agriculture and water productivity, (b) fully integrated value chains, (c) improved smallholder livelihoods (including gender equity), and (d) enhanced sustainability and resilience of food systems and natural resources.
- (iii) To what extent have ADB's approach, delivery, and resources been appropriate to meeting the overall goal of sustainable agriculture and food security?

9. **Aspects covered by the evaluation include (i) corporate and country strategies; (ii) portfolio, operational performance, and results; and (iii) organizational issues.** The evaluation assesses the relevance of the strategic guidance from Strategy 2020 and subsequent operational plans. Additionally, the report evaluates the responsiveness of ADB's ANRRD support in country partnership strategies (CPSs), projects, and pipelines, drawing on findings from existing evaluations and four country assessments, which included field visits, conducted by the evaluation team in Bangladesh, Cambodia, the People's Republic of China (PRC) and Tajikistan. These countries were selected both to ensure subregional diversity and representativeness and because they were collectively responsible for a significant share of the ANRRD portfolio during the evaluation period. Additional aspects covered by the evaluation include the efficiency and effectiveness of ADB's organizational arrangements, and the adequacy of staffing, skills, resources for delivering the ANRRD objectives and activities.

10. **A key challenge for this sector-wide evaluation is that, while agriculture is a sector with related subsectors (e.g., irrigation, livestock), natural resources and food security are crosscutting and multi-sectoral themes, and rural development is a space.** They are thus related but distinct. However, agriculture and ANRRD are key contributors to all these priorities and are the focus of the evaluation. A further challenge is that under ADB's project classification, the number of subsectors⁸ included under ANRRD is far greater than those under other sectors, e.g., the transport sector has eight subsectors. More than 50% of ADB support to ANRRD over the evaluation period, in practice, was related to water infrastructure (e.g., irrigation), which is agricultural; another significant portion of the support was for activities pertaining to water supply and sanitation, which do not contribute to agriculture, while another was for water resource management more generally, including at the river basin level and for flood and pollution control. For the present evaluation, the 17 subsectors are grouped into five clusters.⁹ Further, according to the ADB project classification, there are other non-ANRRD subsectors (e.g., finance for small and medium-sized enterprises [SMEs]) that provide essential inputs for agricultural and rural development and food security. These are outside the scope of the evaluation as the focus is on ANRRD, i.e., projects classified as ANRRD, supported by the Rural Development and Food Security (Agriculture) Thematic Group, and implemented by the Environment, Natural Resources and Agriculture divisions. Non-ANRRD investments were recognized as important but were not assessed. Likewise, the evaluation acknowledges the impacts of external factors on the sector related to governance, institutional capacities, enabling policies as well as environmental constraints (pollution and climatic) that may influence the ability to meet the overall goal. However, the theory of change, assumes these issues are identified and considered in individual projects and country programs.

⁸ (i) Agricultural drainage; (ii) agricultural policy, institutional and capacity development; (iii) agricultural production; (iv) agriculture research and application; (v) agro-industry, marketing, and trade; (vi) fishery; (vii) forestry; (viii) irrigation, (ix) land-based natural resources management; (x) livestock; (xi) rural flood protection; (xii) rural market infrastructure; (xiii) rural sanitation; (xiv) rural water policy, institutional and capacity development; (xv) rural water supply services; (xvi) rural solid waste management; and (xvii) water-based natural resources management.

⁹ (i) Agriculture policy and production; (ii) irrigation, drainage, and flood protection; (iii) land-based natural resources management; (iv) Rural water, sanitation, and hygiene; and (v) water-based natural resources management.

11. **The evaluation followed a mixed method approach and drew on a number of primary and secondary sources.** Primary sources included: (i) a review of existing ADB documents, (ii) analysis of ADB's portfolio including reports and recommendations of the President, and (iii) a review of completed IED evaluations and validations. Secondary sources included (i) approved findings from country assessments and a review of the Pacific region; (ii) an ANRRD perception survey of ADB staff conducted in May 2018; (iii) background studies—the literature review and remote sensing case studies undertaken in April–May 2018,¹⁰ and a review of the Pacific region; and (iv) key informant interviews with stakeholders. The details of each review can be found in Appendix 1 on the evaluation methodology and the scope for ADB support for agriculture in the Pacific in Appendix 2.

12. **Structure.** The remainder of Chapter 1 presents the context for the evaluation. Chapter 2 reviews ADB's ANRRD portfolio. Chapter 3 examines ADB's evolving strategies, operational plans, and country strategies supporting ANRRD. Chapters 1 and 3 contribute to answering supporting question (i) of the evaluation (para. 8). Chapter 4 assesses project performance and results with a focus on the country assessments (Bangladesh, Cambodia, the PRC, and Tajikistan). Chapters 3 and 4 contribute to answering supporting question (ii) of the evaluation. Chapter 5 considers ADB's organizational arrangements for meeting its ANRRD goals, which contributes to answering supporting question (iii) of the evaluation. Chapter 6 presents conclusions and recommendations for ADB to consider in its future approach to its continuing ANRRD agenda.

13. **Limitations of this evaluation.** Although addressing the concerns of sustainable agriculture and food security requires a multisector approach, this evaluation is largely limited to the institutional definition of the ANRRD sector as articulated in the theory of change. Therefore, detailed assessments of inputs from other sectors, such as rural finance, are not provided in this evaluation. The theory of change also indicates that an assessment of ADB support to impact level results was beyond the scope of this evaluation. While the breadth of this evaluation covered the whole portfolio through desk review due to resource constraints field missions were limited to four countries and the Pacific.

C. Trends and Issues in Agriculture, Food Security, and Natural Resources

14. **Agriculture and food security issues need to be viewed within the context of a broader structural transformation.** Largely agrarian and rural economies are being transformed into increasingly urban, nonagricultural economies, and from subsistence to commercial agriculture. During this transition, the agricultural share of gross domestic product declines much more quickly than the agricultural share of employment, increasing inequality and adversely impacting opportunities for the many rural residents who cannot readily shift to employment in urban or off-farm economies. If rural growth is to be both sustainable and inclusive, rural productivity (both farm and off-farm) has to be raised.

15. **Based on the World Bank *World Development Report, 2008*, most ADB developing member countries (DMCs) have now moved from agrarian¹¹ to transforming¹² or urbanized¹³ economies (Figure 2).**¹⁴ The report highlighted the structural transformation process as countries moved from being

¹⁰ The GIS work is intended to demonstrate the technology as a tool to assist in assessing outcomes.

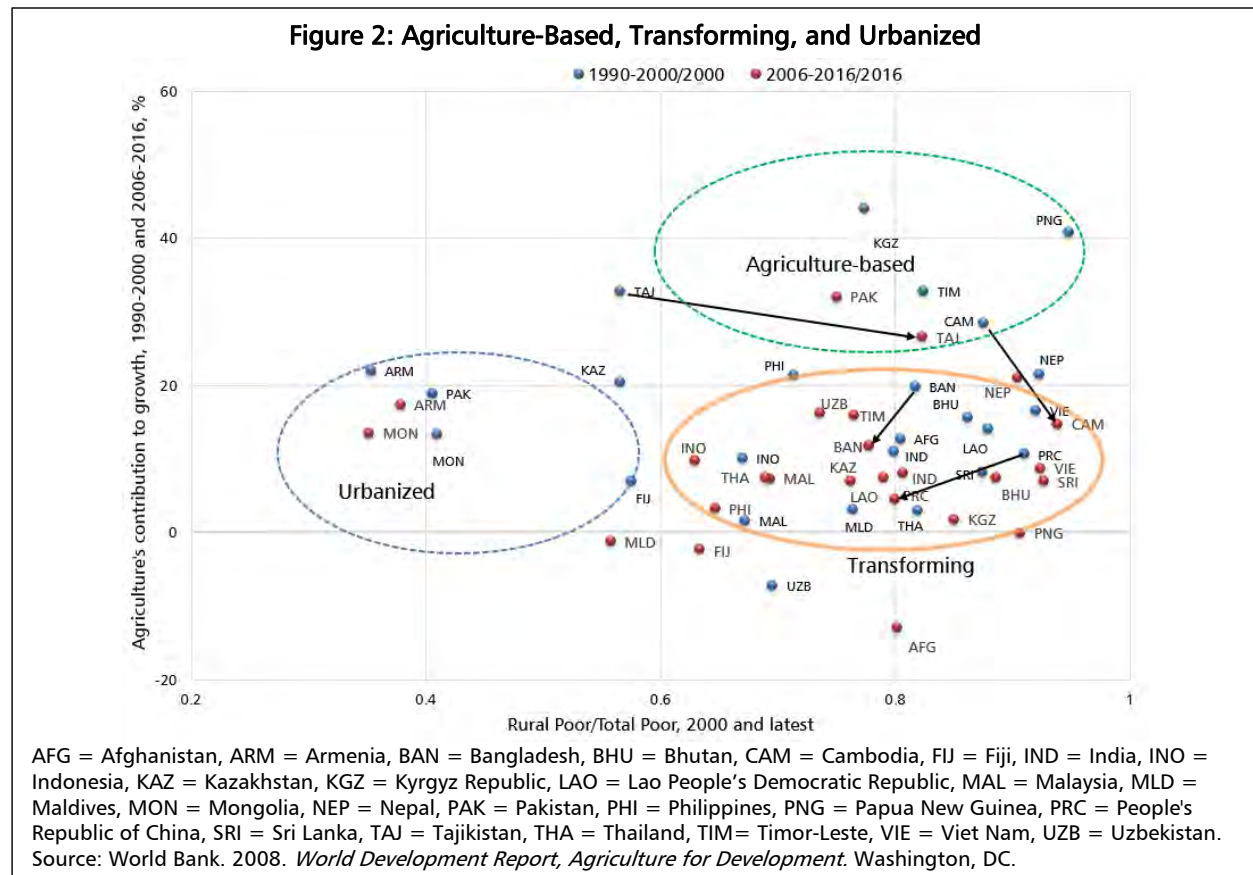
¹¹ Agriculture-based countries—agriculture is a major source of growth, accounting for 32% of gross domestic product (GDP) growth on average—mainly because agriculture is a large share of GDP—and most of the poor are in rural areas (70%). Today this group of countries is mainly in Sub-Saharan countries with few countries in Asia.

¹² Transforming countries—agriculture is no longer a major source of economic growth, contributing on average only 7% to GDP growth, but poverty remains overwhelmingly rural (82% of all poor). Typical members of this group are the People's Republic of China, India, and Indonesia. In transforming countries, Ninety-eight percent of the rural population in South Asia, 96% in East Asia and the Pacific are in transforming countries.

¹³ Urbanized countries—agriculture contributes directly less to economic growth, 5% on average, and poverty is mostly urban. Even so, rural areas still contain 45% of the poor, and agribusiness and the food industry and services account for as much as one-third of GDP. Only a few Asian countries are included in this group, mostly in Central Asia, as most countries are in Latin America, the Caribbean, and Europe.

¹⁴ World Bank. 2008. *World Development Report: Agriculture for Development*. Washington, DC.

agriculture-based to becoming increasingly urbanized. As countries transition, the nature and role of agriculture changes in terms of its contribution to the economy and its employment profile. Understanding this process is important as the type of agricultural support needed evolves from a primary focus on production to a broader approach, including value addition and off-farm activities, to modern food markets and agro-industries as well as improved environmental quality and services. All four case assessment countries (Bangladesh, Cambodia, the PRC, and Tajikistan) are following a general trajectory from an agriculture-based economy to a transforming economy, as are most Asian countries. Some countries, such as Pakistan, have made limited progress along this trajectory, or have even regressed, illustrating the challenges of moving from the production of commodities to establishing a more sophisticated and integrated sector that promotes the commercialization and value addition necessary for further development.



1. Trends to 2007

16. Throughout the 1980s and up to the early 2000s, the agricultural sector in developing countries was regarded as a key ingredient for economic development and poverty reduction.¹⁵ As noted by the *World Development Report, 2008*, of the developing world's 5.5 billion people in 2005, 3 billion lived in rural areas. Of these rural inhabitants, an estimated 2.5 billion were in households engaged in agriculture, and 1.5 billion were in smallholder households. Agriculture provided jobs for 1.3 billion farmers and landless rural laborers. While rural poverty (defined as people living on \$1-a-day or less) underwent a significant decline (from 37% in 1993 to 29% in 2002–2005), during the same period, urban poverty

¹⁵ ADB. 2007. *Rural Poverty Reduction and Inclusive Growth*. Manila; World Bank. 2008. *Agriculture for Development*. Washington, DC; International Food Policy Research Institute (IFPRI). *Global Food Policy Reports*. Washington, DC; FAO. *The State of Food and Agriculture Reports*. Rome.

remained nearly constant as a share of the urban population (13%). However, the large decline in the number of rural poor was largely confined to East Asia and the Pacific;¹⁶ in South Asia and Sub-Saharan Africa, the number of rural poor continued to rise.

17. **Changes in the ANRRD subsectors generated both good and bad outcomes.** Rural areas are a major provider of important environmental services, which are generally unrecognized and unremunerated: sequestering carbon, managing watersheds, and preserving biodiversity. But agriculture continues to be by far the largest user of water, contributing to water scarcity. It is also a major contributor to groundwater depletion, agrochemical pollution, soil degradation, and global climate change, accounting for up to 30% of greenhouse gas emissions. With rising resource scarcity, climate change, and growing concern about environmental degradation, making farming systems more sustainable and less vulnerable to climate change is imperative. Managing the links among agriculture, natural resource conservation, and environmental quality has become an integral part of using agriculture for development.

18. **Until 2007, agriculture performed poorly in most of the developing world.** Most agriculture-based developing countries had agriculture growth rates below 2% per annum for most of the period 1990–2001. From 2002 to 2007, the performance of agriculture improved in most Asian countries. However, those with agricultural sectors that grew more slowly, particularly countries with population growth of more than 2% per annum, had difficulty assuring food security and income growth for their rural populations.

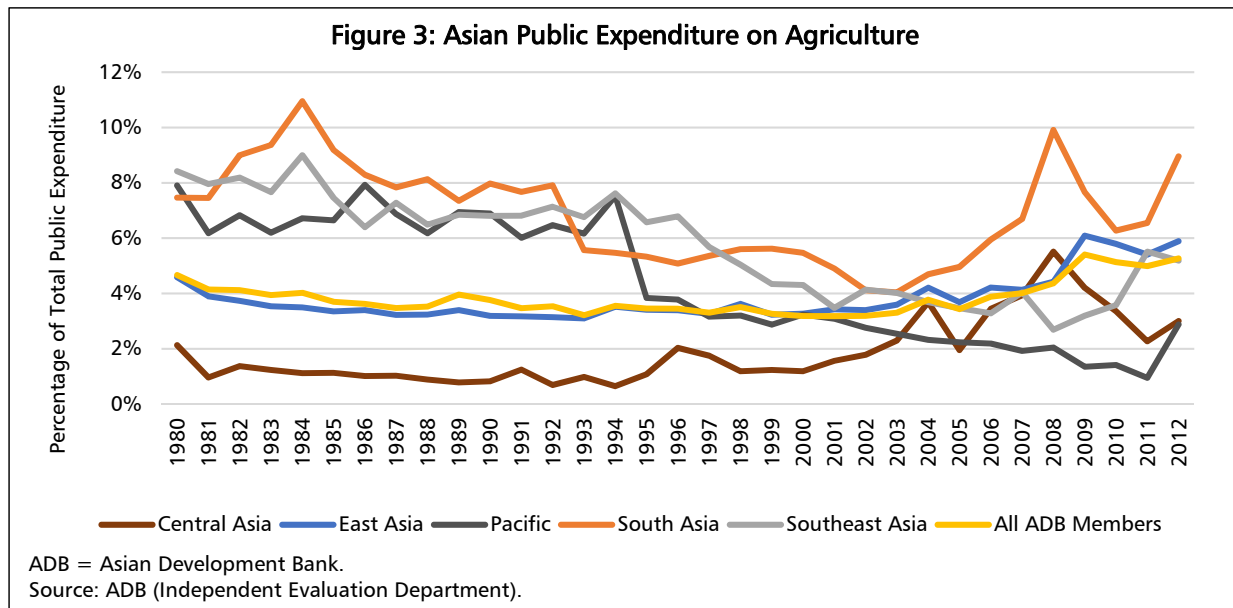
19. **Globally, the causes of a country's poor agricultural performance up to the 2007 lay largely in macroeconomic and sectoral policies that were inimical to agriculture growth.** In developing countries with poorly performing agricultural sectors, these ineffective policies often included the following:¹⁷

- (i) **Poor policies for the private sector, investment, and the environment.** A weak enabling policy environment for private investment in agriculture, input supply, agricultural marketing, and processing usually resulted in limited private investment in the sector, while financial market distortions limited the availability of rural credit. Agricultural policies and regulations permitted or caused harm to the natural environment (pollution of water, land degradation, over-fishing, excessive forest, and wildlife loss).
- (ii) **Taxation and restrictions.** Agriculture was in effect taxed through price controls that dampened farmgate prices to subsidize consumers or to support expensive parastatal marketing and processing enterprises. Controls on the movement of agriculture products, often in order to direct supplies to urban centers, reduced farmers' incomes. Use of border controls to prevent or curtail agricultural imports from neighboring countries reduced export possibilities within regions and affected farm incomes.
- (iii) **Low prioritization of agriculture by developing countries.** Many developing countries showed a lack of interest in agriculture and made few public investments in agricultural research, extension, education, rural infrastructure, livestock, and forestry services. Domestic resistance to policy reform further exacerbated low investment levels. Figure 3 shows the declining share of public expenditure going to agriculture in most of Asia up to 2005. It shows that, throughout Asia up until about 2005, public expenditure on agriculture averaged 4%–5% of total public expenditure, compared with agriculture's average contribution to economic growth of about 20%, and the rural share of national poverty at about 60%. These figures suggest an under-expenditure on agriculture. Although there was an increase after this period, particularly in South Asia, expenditure remained small given the size of population that remained dependent on agriculture.

¹⁶ World Bank. 2008. *Agriculture for Development*. Washington, DC.

¹⁷ ADB. 2007. *Rural Poverty Reduction and Inclusive Growth*. Manila; World Bank. 2008. *World Development Report: Agriculture for Development*. Washington DC; IFPRI. Various dates. *Global Food Policy Reports*. Washington DC; FAO, Various dates. *The State of Food and Agriculture Reports*. Rome.

- (iv) **Agricultural subsidies in Organisation for Economic Co-operation and Development countries (OECD).** These subsidies in richer countries limited their agricultural imports from developing countries, while subsidizing their agricultural exports to the developing world.¹⁸



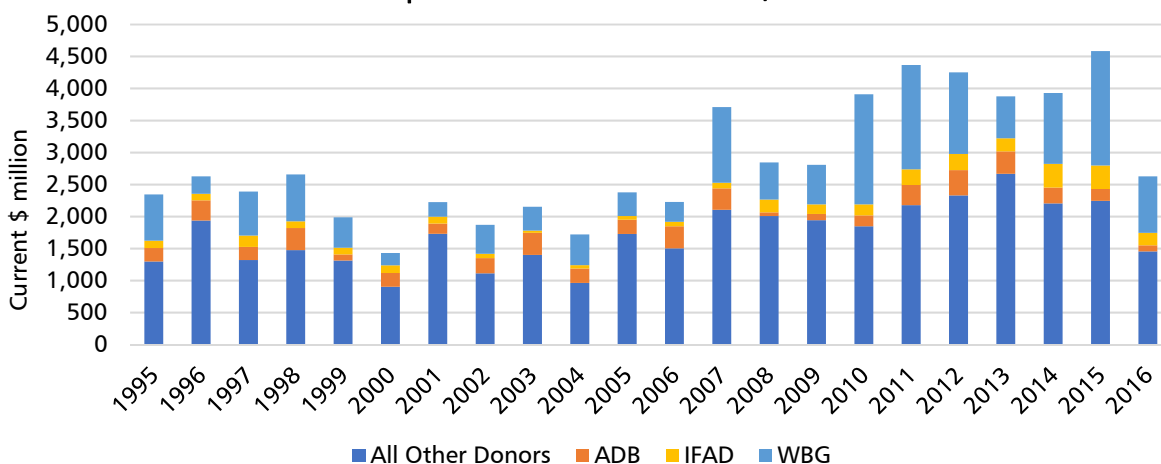
2. Aid to Developing Countries' Agriculture

20. **Official development assistance (ODA) to agriculture has fluctuated.** ODA for agriculture was flat in current dollars, and declined in real dollars in the years after 2000 compared with the 1990s and earlier periods (Figure 4), despite warnings from the FAO, International Food Policy Research Institute (IFPRI), and International Fund for Agricultural Development (IFAD).¹⁹ ADB began decreasing its aid to agriculture much earlier than other development partners, from nearly \$2.7 billion in 1982–1986 to about \$1.8 billion in the 1987–1991 period. This decline continued in the 1997–2001 period (\$1.0 billion), picking up slightly in 2002–2006 (\$1.4 billion).

¹⁸ See OECD and FAO. 2015. *Agricultural Outlook*. Paris; World Bank. 2008. *World Development Report: Agriculture for Development*. Washington, DC.

¹⁹ IFAD. 2000. *Rural Poverty Report*. Rome.

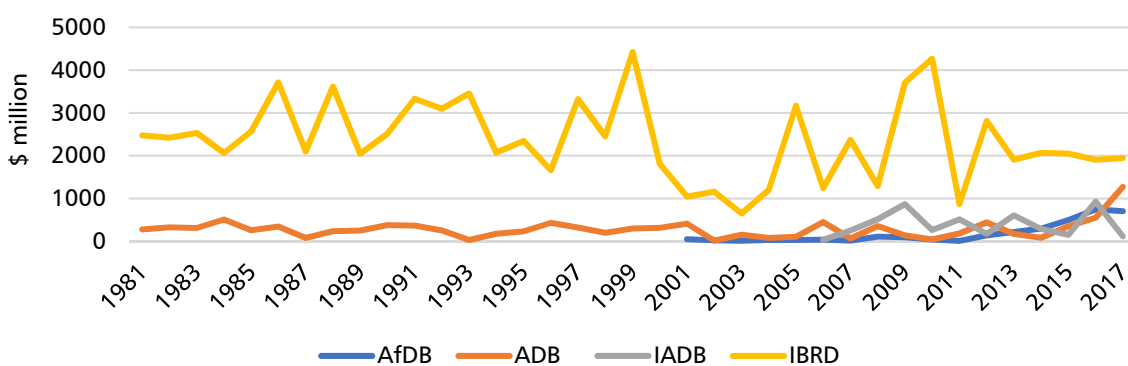
Figure 4: Official Development Assistance Commitments for Agriculture, Forestry, Fishing and Rural Development in ADB Member States, 1995–2016



ADB = Asian Development Bank, IFAD = International Fund for Agricultural Development, WBG = World Bank Group.
 Note: ADB Special Funds account for all ADB official development assistance (ODA) commitments, while IDA accounts for all WBG ODA commitments. "All other donors" primarily consist of bilateral donors. ODA does not include multilateral development bank lending on International Bank for Reconstruction and Development and equivalent terms; but does include lending on International Development Association equivalent terms.
 Source: Organisation for Economic Co-operation and Development database.

21. **In addition to ODA, multilateral development banks have provided loans at near commercial rates to agriculture.** Figure 5 shows a less clear pattern for these loans, with a decline in the early 2000s and a recent increase (since 2015) by ADB and the African Development Bank. This was driven by poor performance in the sector and changes in development partner priorities in terms of their preferred sectors and instruments (e.g., a move toward policy-based loans). ADB lending for ANRRD is now approaching \$2 billion dollars per year and is expected to increase. This recent trend in the ADB portfolio is discussed in Chapter 2.

Figure 5: Multilateral Development Bank Lending on Near-Market Terms for Agriculture and Related Projects



ADB = Asian Development Bank, AfDB = African Development Bank, IADB = Inter-American Development Bank, IBRD = International Bank for Reconstruction and Development.
 Sources: AfDB: loan and grant approvals for agriculture and rural development projects. ADB: regular ordinary capital resources sovereign loan approvals for agriculture, natural resources, and rural development projects. IADB: approved sovereign guaranteed loans from ordinary capital resources for agriculture, natural resources, and rural development. IBRD: commitments for all agriculture projects by fiscal year.

3. Food Price Crisis of 2007–2008 and Reassessment of the Importance of Agriculture

22. **International food prices spiked dramatically in 2008, renewing fears of massive food shortages and increased hunger.** Food price increases sparked food riots in some 25 countries.²⁰ Rural poverty increased, and the shortsightedness of many government and development partners in neglecting agriculture became apparent.

23. **In response, developing member country governments and development partners rediscovered agriculture.** This change of course was reflected in an increase in public expenditure on agriculture. For the development partners, IBRD began increasing its financing for agriculture beginning in the mid-2000s, gathering pace after 2008 (Figures 4–5). The biggest upturns were by the World Bank and some bilateral donors. IFAD also expanded its lending to agriculture. However, ADB lending for agriculture, like that of the other regional development banks, picked up only after 2010.

24. **In reengaging with agriculture, governments and development partners sought to draw lessons from past failures.** Analysis of the causes of these failures led to the following recommendations for DMC governments, development partners, and OECD governments:²¹ improve policies, expand public expenditure, extend financial access, include environmental and social factors in agricultural policy and investment, and employ new approaches in agricultural projects financed by development partners, often involving some form of public–private collaboration.

25. **In addition to better agriculture policies and increased investments, attention to gender was mainstreamed.** The importance of gender issues in agricultural development was reinforced, in part because of the increased migration of men from the land, often leaving women as the farmers. Gender issues have been historically neglected; women’s access to land, credit, and agricultural education had always been a constraint on development, but not one that had been acknowledged.

26. **It was likewise increasingly recognized that issues of food security and malnutrition could not be addressed by increasing agricultural production alone.** As the volume of food available has increased, there has been greater recognition of the importance of nutrition. The composition as well as the amount of the food consumed was increasingly regarded as important for food security. Greater consumption of processed foods, for example, was leading to obesity in developing countries, mirroring the change in industrial countries. Inadequate consumption of fruit and vegetables and excessive consumption of sugar and fat was leading to health issues. As a result, improvements in food quality, nutrition, and diet were added to the list of policy and project objectives.²²

27. **Provision of agricultural inputs, markets and processing facilities are increasingly viewed as a private sector activity.**²³ Even in countries with strong public sectors, such as the PRC and Viet Nam, the essentially private sector nature of agricultural production, processing, and marketing is being recognized. Major development partners are expanding their assistance to private agribusiness, often through equity investment and nonsovereign lending.²⁴ Development partners such as IFAD, which do

²⁰ Food and Agriculture Organization of the United Nations.

²¹ ADB. 2009. *Operational Plan for Sustainable Food Security in Asia and the Pacific*. Manila. All of the multilateral development banks developed new strategies for support to agriculture during this period, which included many of the elements cited here.

²² FAO, IFAD, UNICEF, WFP, and WHO. 2017. *The State of Food Security and Nutrition in the World 2017. Building Resilience for Peace and Food Security*. Rome. See also ADB. 2015. *Operational Plan for Agriculture and Natural Resources: Promoting Sustainable Food Security in Asia and the Pacific in 2015–2020*. <https://www.adb.org/documents/operational-plan-agriculture-and-natural-resources-2015-2020>; World Bank. 2016. *Shaping the Global Food System to deliver Improved Nutrition and Health*. Washington, DC.

²³ In this report, references to the private sector refer to privately owned agroprocessing, marketing, and input supply businesses, as well as large commercial farms. ADB, like other international lenders has traditionally supported small and medium-sized farmers, who are mostly private. This support continues.

²⁴ Such as ADB, African Development Bank, European Bank for Reconstruction and Development, European Commission, Department for International Development of the United Kingdom, Agence Française de Développement, United States Agency for International Development, and the World Bank.

not have a nonsovereign lending instrument, are channeling more of their funds through projects involving partnerships between public and private producers. The World Bank and the International Finance Corporation (IFC) began several years ago to undertake joint projects in the sector. This has been part of their plan to maximize financing for development in agricultural value chains by crowding-in private investment and optimizing the use of scarce public resources.²⁵ Joint sovereign–nonsovereign projects continue to be a small minority of total IFC agribusiness. More frequent is collaborative project preparation of separate sovereign and nonsovereign projects in which staff from both sides of the World Bank/IFC “houses” participate.

28. **Project investments and policy advice are viewed within the framework of the value chain.** The concept of the value chain views agricultural products as commodities (Box 1). Investments and policy advice begin with the inputs required, and include farming, marketing, processing, and consumption. Consequently, value chain support for basic staples such as maize, rice, and wheat includes seed supply, fertilizer, land use, water, and farm equipment; farming techniques appropriate to the location; storage and marketing of the product; processing into different products; and finally retail and consumption. Included in this support are measures to address environmental issues, nutritional concerns, gender aspects, and finance. This analysis has led to the realization that each commodity (e.g., tea or coffee) and value chain has different requirements. Furthermore, the value chains for the same commodity will differ across countries. In most value chains, the requirements of private farmers and agribusinesses (or cooperatives in some cases) are likely to dominate. However, government policy changes and public investment in infrastructure, education, and agricultural research and extension are almost always also present. Access to finance is important. The involvement of both private and public investment often requires private–public linkages and partnerships in value chain development.

Box 1: The Emergence and Importance of Agricultural Value Chains

The current global context for agriculture is characterized by rapid change and increasing challenges. Many countries have slowly reformed their agricultural policies, leading to a greater role for the private sector in agriculture. Increasing populations, incomes, and urbanization are changing diets and this, along with the use of food crops for biofuels, have helped increase food prices. As consumer demands related to the safety, quality, and convenience of both organic and processed foods increase, the gap between farm and consumer prices is widening. Supermarkets are emerging as a major stakeholder in food retailing.

Collectively, these changes are altering the way food is produced, processed, and sold. In particular, the increased demand for safe, higher value, and differentiated agricultural products has created opportunities for farmers and agribusiness entrepreneurs to transform commodities into products that are demanded by consumers. This has led to greater involvement of the private sector in agriculture and a focus on developing and improving agriculture value chains in terms of their quality, productivity, efficiency, and depth.

Value chains are organized links between groups of producers, traders, processors, and service providers (including nongovernment organizations) that join together to improve productivity and the value added from their activities. In a well-managed value chain, the value of the end-product is often greater than the sum of individual value additions. By joining together, the participants in a value chain increase competitiveness and are better able to maintain this through innovation. The limitations of each participant in the chain are overcome by establishing synergies and governance rules aimed at producing higher value. Commercial stakeholders that are part of an effective value chain are able to: reduce the cost of doing business; increase revenues; increase their bargaining power; improve access to technology, information, and capital; and by doing so, use innovative production and marketing processes to gain higher value and provide higher quality to customers.

Sources: Asian Development Bank (Independent Evaluation Department); Independent Evaluation Department. 2012. *Evaluation Knowledge Study: Support for Agricultural Value Chain Development*. Manila: Asian Development Bank.

²⁵ World Bank Group. 2018. *Future of Food: Maximizing Finance for Development in Agricultural Value Chains*. Washington, DC.

4. Current Agricultural Issues and Challenges for Asia and the Pacific

29. **Because of the tremendous progress in improving food security over the past 40 years, today's challenges vary across Asia and the Pacific.** However, the main issues and challenges are relevant almost everywhere, although their significance or magnitude may vary. Box 2 highlights the commonality and differences of key issues (agricultural productivity gap, malnutrition, environmental shocks and food and nutrition security policies) that are prominent for the region.

a. Agricultural Growth and Productivity

30. **East Asia shows fairly consistent agriculture growth rates over a long period of time (Table 1) resulting in substantial progress (Box 2, Figure A).** There have also been periods of high agricultural growth in South Asia (2007–2011 after the food price crisis), Africa (growing from a low base), and in the United States (2002–2006). In other regions, much lower agricultural growth rates are found. The great variation in agricultural growth rates within each region is typical of agriculture, which is highly dependent on weather conditions, agricultural policy, and public expenditure, which are in turn highly variable. This however, makes the good performance of East Asia all the more remarkable. Afghanistan, Armenia, Bangladesh, the PRC, Mongolia, Tajikistan, and Uzbekistan, show high agriculture growth rates of over 4% per annum in the 2007–2016 period.²⁶ For Mongolia and Tajikistan, this came after poor prior performance, so the growth was a catching up. Tajikistan also benefited from having a high percentage of its arable land irrigated. For the other countries in this list, their good performance is a long-term trend. A number of other Asian countries²⁷ had moderate agricultural growth (over 3% per annum), while most remaining Asian countries did not see good agricultural growth rates over the 2007–2016 period. Although the data are spotty, the best Asian agricultural performers generally have had the most rapid increase in total factor productivity (growth over and above that caused by an increase in the use of agricultural land, labor, and capital).

Table 1: Average Annual Growth in Agricultural Value Added by Region in Constant United States Dollars (%)

Country	1982– 1986	1987– 1991	1992– 1996	1997– 2001	2002– 2006	2007– 2011	2012– 2016
All ADB countries	4.7	3.3	3.7	2.4	3.0	3.5	2.8
Central and West Asia	4.2	2.2	1.6	2.6	3.9	3.2	2.8
East Asia	7.4	3.8	4.1	2.3	3.0	3.7	3.3
South Asia	2.3	3.3	4.5	2.6	2.5	4.1	2.5
Southeast Asia	2.8	3.0	2.4	2.1	3.8	3.1	2.3
Pacific	2.3	(1.6)	3.1	(1.2)	1.7	1.3	2.3
Oceania	4.7	3.6	2.8	3.6	2.3	1.4	0.1
Africa	2.9	3.3	3.1	2.9	6.3	4.1	3.7
Latin America and Caribbean	1.4	2.0	2.3	2.4	3.6	2.4	1.6
European Union				1.1	0.3	0.9	0.3
United States					4.9	0.2	3.4

ADB = Asian Development Bank.

Source: World Bank. World Bank Indicators.

²⁶ Several small pacific island countries and Arab countries also performed well during this period. For very small countries in the Pacific with very small agriculture sectors, growth rates are misleading as small absolute increases can cause large percentage growth rates, both upward and downward.

²⁷ Azerbaijan, Cambodia, Indonesia, India, Kazakhstan, Lao People's Democratic Republic (Lao PDR), and Sri Lanka.

Box 2: Key Agricultural Challenges

The Ending Rural Hunger project tool developed by the Brookings Institution was used to help characterize the main agricultural issues and challenges for Asia and the Pacific region. Figure A shows the agricultural productivity gaps in the region, drawing on indicators of output gaps, technology gaps, and infrastructure gaps. This includes measurements of cereal yields, the extent of family farming, total factor productivity growth in agriculture, rural infrastructure, and access to inputs such as modern seed varieties, transport, fertilizer, and financial services. The People's Republic of China (PRC) performed well but the figure shows there is scope for improvements in other regions. Figure B shows the state of malnutrition in the region, based on indicators of a lack of dietary diversity and child malnutrition, focusing mainly on undernutrition or stunting and wasting in children younger than 5 years old. South Asia and Southeast Asia are areas requiring concerted attention. Figure C on environmental shocks is a composite of indicators on available water resources, projected impacts from climate change on runoff and agricultural yield, and land degradation risk. Vulnerabilities are evident for most countries across the region, particularly for South Asia, and even for Southeast Asia and the PRC. Figure D shows how strong government policies are addressing food and nutrition security, highlighting the strong position of the PRC and Malaysia, and gaps in most other countries.

Figure A: Agricultural Productivity Gap (%)

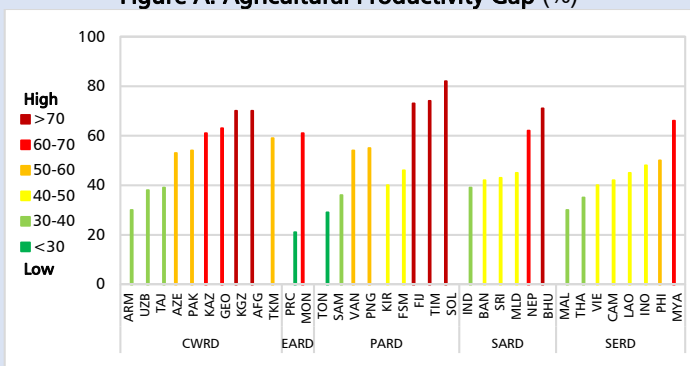


Figure B: Malnutrition (%)

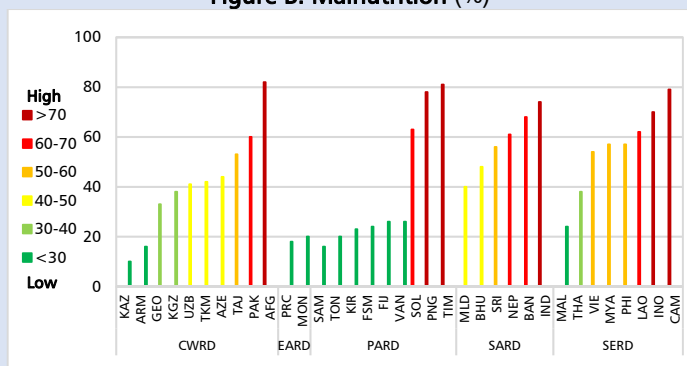


Figure C: Environmental Shocks (%)

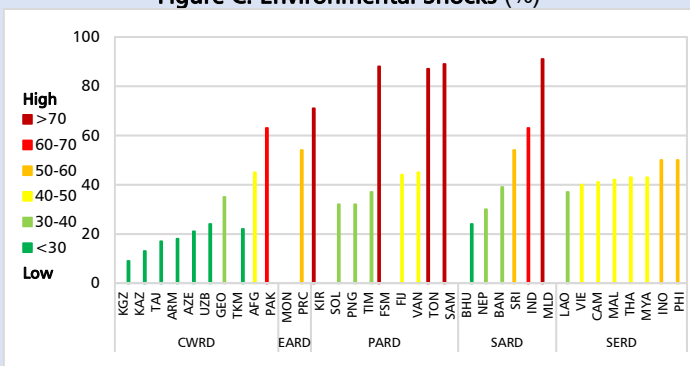
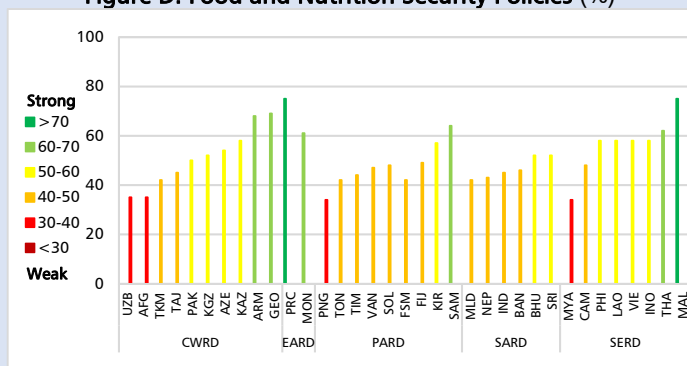


Figure D: Food and Nutrition Security Policies (%)



AFG = Afghanistan, ARM = Armenia, AZE = Azerbaijan, BAN = Bangladesh, BHU = Bhutan, CAM = Cambodia, CWRD = Central and West Asia Department, EARD = East Asia Department, FIJ = Fiji, FSM = Federated States of Micronesia, GEO = Georgia, IND = India, INO = Indonesia, KAZ = Kazakhstan, KIR = Kiribati, KGZ = Kyrgyz Republic, LAO = Lao People's Democratic Republic, MAL = Malaysia, MLD = Maldives, MON = Mongolia, MYA = Myanmar, NEP = Nepal, PAK = Pakistan, PARD = Pacific Department, PHI = Philippines, PNG = Papua New Guinea, PRC = People's Republic of China, SAM = Samoa, SARD = South Asia Department, SERD = Southeast Asia Department, SOL = Solomon Islands, SRI = Sri Lanka, TAJ = Tajikistan, THA = Thailand, TIM = Timor-Leste, TKM = Turkmenistan, TON = Tonga, VAN = Vanuatu, VIE = Viet Nam, UZB = Uzbekistan.

All the figures are composite indexes to facilitate country comparisons. Taken together, the figures highlight the variable nature of these issues across the region; some countries are strong on some issues and weaker on others. Strategies to address these issues should, therefore, reflect this heterogeneity.

Sources: Brookings Institution's Ending Rural Hunger project (<https://endingruralhunger.org/>); and Asian Development Bank (Independent Evaluation Department).

31. **The need for productivity improvements is a key concern worldwide.** Mechanization and technology are the key drivers of productivity growth and include technologies to save water and improve farm inputs (e.g., precision farming), information and communications technology (ICT), and rural

advisory services. All these contribute to greater productivity.²⁸ The countries whose agriculture sectors have performed best have generally been those in which agricultural productivity has increased fastest. Although agriculture can grow as the result of more labor, capital investment, and bringing more land into cultivation, these sources of growth are limited by migration out of rural areas and environmental constraints. The most sustainable way for agriculture output to expand is through productivity growth: This in turn suggests the importance of technological development.

32. **Irrigation has been critically important in Asian agriculture.** Rice has traditionally been the dominant crop on irrigated lands in Asia, with water from upstream storage reservoirs or diversion dams being carried by gravity through partially regulated canals to field distributaries. The disadvantages of this system include the high rates of water loss by evaporation and seepage, loss of soil nutrients, and the possibility of adverse impacts on downstream areas from the continuously flowing water that carries with it fertilizers and pesticides. Increasing attention has been paid throughout Asia to pumping groundwater. The use of shallow tube wells, as well as deep-bore well pumping, has become common, especially in India, Iran, and Pakistan. Such irrigation avoids some of the disadvantages of flow irrigation and allows for easier drainage. However, in many Asian aquifers, water tables are declining due to over-extraction beyond sustainable yields, exacerbated in some cases by energy subsidies for pumping.

33. **Agricultural research remains crucial.** Investment in agricultural research has significant economic payoffs. The most important modern development in Asian agriculture has been the introduction of new high-yielding strains of cereals in combination with reliable water supply and appropriate use of fertilizers. Most Asian countries have adopted the new varieties, and the yield per acre for cereals has consequently increased substantially since the late 1960s. The development and introduction of improved varieties are largely attributed to partnerships between international organizations, such as the International Rice Research Institute (IRRI), and national agricultural research agencies. Additional research efforts remain critical for continuous increases in productivity and for the development of more climate-resilient varieties and production techniques.

34. **Since 2000, most of the growth in agricultural spending in Asia has been driven by the PRC, India, and Indonesia, which have well-staffed and relatively well-funded agricultural research systems.** In some of Asia's smaller countries, however, investment levels have stagnated or fallen. A number of countries—Cambodia, Lao People's Democratic Republic (Lao PDR), Nepal, and Pakistan in particular—have underinvested in agricultural research and have outdated equipment and facilities that impede productive research and compromise the number and quality of research outputs.²⁹

35. **Recent advances in the use of ICT in Asian agriculture are promising.** ICT is increasingly changing how information is disseminated and obtained in the agricultural sector. Key areas where it can assist farmers include input procurement, marketing of agricultural produce, gathering trend data (e.g., market, weather, prices), obtaining new information and ensuring traceability³⁰. The PRC is a regional leader in encouraging the introduction of ICT into agriculture. It is also linking ICT with other practices such as precision farming, drip irrigation, appropriate mechanization, greenhouses, use of compound fertilizers, and improved seeds, all of which improve productivity.

²⁸ In addition to the FAO study cited, see also IFPRI. 2017. *Global Food Policy Report*. Washington, DC, 2017. IFPRI points out that in the People's Republic of China agriculture has been a star performer with respect to productivity improvements but has serious problems with food safety and its natural resource environment.

²⁹ IFPRI. 2015. *A Snapshot of Agricultural Research Investment and Capacity in Asia*. Resource Paper for the Asia Pacific Association of Agricultural Research Institutions' High Level Policy Dialogue. Bangkok. December.

³⁰ Traceability is a business process that enables trading partners to follow products as they move from the field to retail store or food service operator. Each Traceability Partner must be able to identify the direct source (supplier) and direct recipient (customer) of the product.

b. Food Security and Poverty Reduction

36. **Asia is leading the world in improving nutrition but still has a significant portion of the world's undernourished people.** Table 2 shows improvements in the prevalence of undernourishment as a percentage of the total population, led by the PRC and Southeast Asia. However, South Asia, although it has also made progress, continues to lag (Box 2). Agriculture growth contributes to nutritional improvements by increasing the income of rural populations and expanding and stabilizing the food supply. Nutritional improvements are linked to other factors including better education, particularly of women and children, and food distribution to the poor. Obesity among children is increasing rapidly everywhere in the world, as processed foods high in fats and sugar become more widely consumed.³¹ So, while undernourishment is generally decreasing, malnourishment in the form of obesity is increasing.

Table 2: Prevalence of Undernourishment in the Total Population
(%)

Country or Region	2004–2006	2014–2016
World	14.1	10.7
East Asia	14.1	9.2
People's Republic of China	15.3	9.6
Southeast Asia	20.0	10.2
South Asia	20.0	14.9
West Asia	10.5	9.6

Sources: Food and Agriculture Organization of the United Nations (FAO). 2007. *The Future of Food and Agriculture; Trends and Challenges*. Rome; FAO, International Fund for Agricultural Development, World Food Programme, and World Health Organization. 2017. *The State of Food Security and Nutrition in the World 2017. Building Resilience for Peace and Food Security*. Rome: FAO.

37. **Livestock, fisheries, and aquaculture are a growing source of protein and make important contributions to the national economies of a number of Asian and Pacific countries.** The Asia and Pacific region has generated more than half of the gains in global livestock production since the early 1990s; it is also the world's largest producer of fish, accounting for more than 50% of world production since 2006. However, many of the fisheries in the region are overexploited, both biologically and economically, and require better management. Aquaculture is significantly increasing production, with eight of the 10 largest producing countries located in Asia, with the PRC as the biggest.

38. **The world's 500 million smallholder farmers are frequently, although not always, left behind in the ongoing rural transformation, which is characterized by the development of value chains.** To date, Asia's estimated 350 million smallholders have increased the productivity of staple crops, benefiting food security, and most have remained financially viable. However, there are limits to the income that can be generated from small farms and staple crops; without an agricultural transformation, Asian subsistence farmers risk being left behind.

39. **The increasing age of rural populations and the feminization of the agricultural labor force exacerbate challenges and inequities.** Youth and male outmigration from rural areas is overburdening the elderly and women. The growing shift to labor-intensive cash crops often results in women taking on more laborious and lower-paid on-farm tasks related to land preparation, cultivation, and harvesting. Women farmers are further disadvantaged as they have less access than men to productive assets, especially land, employment opportunities, extension, financial services, and technology.

40. **Conflict is now the main cause of severe malnutrition and food insecurity.** Nineteen countries in conflict around the world all have food crises (Afghanistan is among them, footnote 29). Sub-national conflicts within some Asian countries also negatively affect food security and nutrition.

³¹ FAO, IFAD, UNICEF, WFP, and WHO. 2017. *The State of Food Security and Nutrition in the World 2017. Building Resilience for Peace and Food Security*. Rome.

c. Responding to Trends on Climate, Urbanization, and Environment

41. **Climate-related risks have serious consequences for agriculture and are driving the need for much more environmentally sustainable and climate-friendly farming systems.** The latest global risks assessment is dominated by environmental risks including: extreme weather events and temperatures; accelerating biodiversity loss; pollution of air, soil and water; failures of climate change mitigation and adaptation; and transition risks as we move to a low-carbon economy.³² The world's agriculture currently uses 11% of the world's land, accounts for 70% of its freshwater withdrawals, causes 80% of deforestation, 30% of energy consumption, and emits 10 gigatons of carbon dioxide per annum. There is growing recognition of the need to use limited water and land resources more efficiently and to reverse agriculture-related environmental degradation. South Asia and the PRC face severe environmental stress (Box 2). In addition, climate change and climate variability pose large, but regionally differing, threats to agriculture and food security in Asia through higher temperatures, more extreme weather events, drier conditions in large parts of the region, sea-level rise, and flooding, which will have an impact on crop patterns and yields and cause crop damage.³³ This will compound already observed pressures such as decreasing soil productivity, groundwater depletion, declining water availability, and increased pest incidence and salinity. It is critical, therefore, that ADB investments in ANRRD support greater adaptation through improved agricultural practices, resilient infrastructure and complementary nature-based solutions.³⁴

42. **Rapid urbanization is creating additional challenges.** The rate of urbanization is so rapid in many countries in Asia, particularly South Asia, that urban employment, manufacturing, and service jobs cannot absorb both urban population growth and migration from the countryside. The result is that the rural poor who migrate to the cities often end up as urban poor. Emerging challenges among the late transforming African and South Asian countries are distinct from those faced by the early transforming East Asian and Latin American countries in which urban development, manufacturing, and service industry development enabled greater absorption of rural migrants, although this varied among countries. Urbanization is also changing overall dietary patterns and production systems, as people in urban areas tend to consume more processed food and more livestock products. This in turn affects agricultural production and value chains. More land is needed for feedstuffs and more value added is being applied by marketing and processing companies.

43. **Food safety is a growing issue throughout Asia.** Again, the PRC is illustrative. The PRC has relatively low sanitary and phytosanitary standards for its agricultural goods but has incorporated food safety as a priority in its most recent 5-year plan. Excessive pesticide residues, poor food hygiene, unsafe additives, contamination with heavy metals and other contaminants, and misuse of veterinary drugs have all led to trade restrictions being imposed by Japan, the United States, and the European Union. Similar issues have been widely publicized in Thailand and Viet Nam. Other Asian countries face similar problems though the degree of severity has been less well studied.³⁵ Similarly, water and soil pollution are increasingly becoming a food safety and food security, due to negative effects on productivity, concern.

44. **New approaches to value chain development and off farm employment are being explored.** These include agro-territorial plans, spatially defined agribusiness/agro-industrial investments, for value chain development (agro-corridors, agro-clusters, agro-parks, and agribusiness in urban areas). All require cooperation between governments, private agribusiness, and farmers. They work best when the policy and regulatory environment is most appealing to the private sector. Off-farm job creation in agro-industry and services is needed to connect smallholders to markets while expanding job opportunities for people no longer able to survive in farming.

³² WEF. 2018. *The Global Risks Report 2018*. 13th Edition. World Economic Forum.

³³ ADB. 2017. *A Region at Risk the Human Dimensions of Climate Change in Asia and the Pacific*. Manila.

³⁴ WWAP (United Nations World Water Assessment Programme). 2018. *The United Nations World Water Development Report 2018: Nature-based Solutions*. Paris, UNESCO.

³⁵ IFPRI. 2017. *Global Food Policy Report*. Washington, DC.

45. **In many parts of the region, ecological damage is evident in the form of growing biodiversity loss, water scarcity, water and air pollution, ocean acidification, fisheries depletion, and wetland degradation.** In 2008, Asia and the Pacific recorded the world's highest number of threatened species, with Southeast Asia experiencing the most serious cases.³⁶ In South Asia, water security is already low, and the region may be disproportionately affected by more frequent and intense droughts and other stresses on water management.³⁷ Many rivers and lakes in the region are dead or dying, groundwater aquifers are over-pumped, and some species of aquatic life have been driven to extinction. Agriculture has contributed to this situation through soil degradation and fertilizer and pesticide run-off. Many Asian countries are facing a decline in forest cover; for example, forestland and protected areas are being converted to agricultural purposes in several countries, including Indonesia, Myanmar, Nepal, and Sri Lanka. However, Bhutan, the PRC, India, Lao PDR, the Philippines, and Viet Nam have expanded the area under forests. For the PRC, India, and Lao PDR, this is particularly remarkable given the rapid growth in agriculture. An important factor that has permitted rapid agricultural growth while area used for this purpose declines is the growth in total factor productivity.

46. **Responding to these emerging challenges such as resource scarcity, biodiversity loss and climate change requires new sustainable agriculture technologies to feed a growing population and assist farming systems.** In addition to traditional approaches to improve seeds, resource efficiency, stress tolerance and agricultural practices, fintech, sensors, drones, and robotics offer opportunities to change agriculture further. In addition, technologies are fast improving non-meat and aquaculture sources of protein providing legitimate alternatives to intensive animal agriculture.

d. Policy

47. **The improvement in the agricultural performance of many Asian countries is attributable to the reform of many of the distorted policies discussed in the sections above.** Aspects benefiting from reform and removal of institutional constraints include: reductions in measures that have been in effect taxation of agriculture, reform of parastatal marketing and processing enterprises, reductions in tariffs and border controls, and, in some cases, increased public investment in public goods supporting agriculture. For example, the PRC (Box 3) undertook policy reforms that have had a positive impact on agriculture growth.³⁸ Country conditions vary, but increasingly governments are finding ways to balance the needs of poor urban populations and other competing sectors like manufacturing without simultaneously suppressing farmers' incentives to produce more and more efficiently. Key barriers to agricultural production and diversification often include lack of access to financial services, fragmented or untitled land holdings, and price controls. Subsidies (e.g., for water) also have a distorting effect.

³⁶ UNDP. 2010. *State of Biodiversity in Asia and the Pacific*. Bangkok.

³⁷ ADB. 2013. *Asian Water Development Outlook 2013*. Manila.

³⁸ World Bank. *Doing Business Rankings*.

Box 3: Getting Policies Right—Lessons from the People's Republic of China

As it is probably the best recent agricultural performer in the world, the case of People's Republic of China (PRC) is informative. The PRC has been remarkably innovative in its agricultural policy, and its private sector has invested effectively. The PRC invests a greater share of its public expenditure in agriculture than almost any other country in the world. In particular, it invests more in agricultural research and development than any other country, with an average annual growth in agricultural research and development of nearly 10% in the 2000–2009 period. Notable policy changes in the past decade have included an expansion of farmers' land rights, allowing land transfers through the rental market. Considerable investments in the PRC's rural areas include infrastructure, irrigation, rural education and health, and improved rural and environmental management. The PRC government has also provided agricultural tax exemptions, granted subsidies for agricultural production, and increased the prices the government pays for agricultural commodities. There has been some domestic and international trade liberalization, and expanded social, as well as environmental, protection and social security coverage. Private investment in agriculture and in upstream and downstream agribusiness has likewise been substantial.

Source: Asian Development Bank (Independent Evaluation Department).

48. **Limited progress has been made, particularly in East and Southeast Asia, in improving rice policy and reducing trade restrictions.** For most countries in these regions, agriculture policy continues to be excessively rice-centric and disproportionately focused on rice self-sufficiency. These policies are having an adverse impact on regional food security, are costly to governments, and discourage private investment in the rice supply chain. Barriers to the rice trade between Asian countries, which were a major contributor to the rapid increase in consumer rice prices during the 2008 food price emergency, have not been significantly reformed. Allowing more regional trade in rice would be a first step in reform.³⁹ Rapidly increasing demand for dairy goods, livestock products, fruits and vegetables, and fish, while the demand for cereals is decreasing, could be better met through more regional trade in these products.

³⁹ OECD and FAO. 2015. *Agricultural Outlook*. Paris.

2

PORTFOLIO AND TRENDS



Highlights

ADB has largely met the \$2 billion annual approval target for ANRRD and food security set in the 2009 operational plan. More than half of the target was met from non-ANRRD sectors. However, the ANRRD volume of lending has been increasing and came close to the \$2 billion target in 2017.

Although the overall ANRRD portfolio is increasing, there has been a steady decline in lending for agricultural policy and production and a significant increase in the water-related subsectors, which now dominate the ANRRD portfolio.

While there are 17 subsectors for ANRRD in the ADB project classification system, at least five have had minimal or no investments over the evaluation period: (i) agriculture research and application; (ii) rural water policy, institutional, and capacity development; (iii) fishery; (iv) rural market infrastructure; and (v) rural sanitation.

There has been a clear and significant shift to larger operations across all regions, which reflects the shift to more infrastructure-focused water investments.

East Asia has the most diversified portfolio, with projects covering the main subsector clusters. Central West Asia, South Asia, and Southeast Asia are increasingly focused almost exclusively on water-related investments. There is only one ongoing ANRRD project classified as agricultural policy and production and this is in the Pacific.

Most lending is in the form of sovereign investment projects. Other modalities, such as sector loans, are used infrequently. The first results-based loan for irrigation was recently approved in Indonesia.

Private sector agribusiness lending began in 2012. This is a small but growing portfolio with most of its investments in the PRC.

A. Overview of the Portfolio

49. **This chapter presents the level and type of ADB support to ANRRD over time.** ADB support includes all sovereign loans, grants, technical assistance, regional technical assistance, and nonsovereign operations approved between 2005 and 2017. The chapter identifies the main trends not only in terms of modality, but also across different regions, countries, and subsectors. The evaluation clusters the 17 ANRRD subsectors into five subsector groups (footnote 9) to simplify the analysis and highlights individual subsectors whenever necessary.

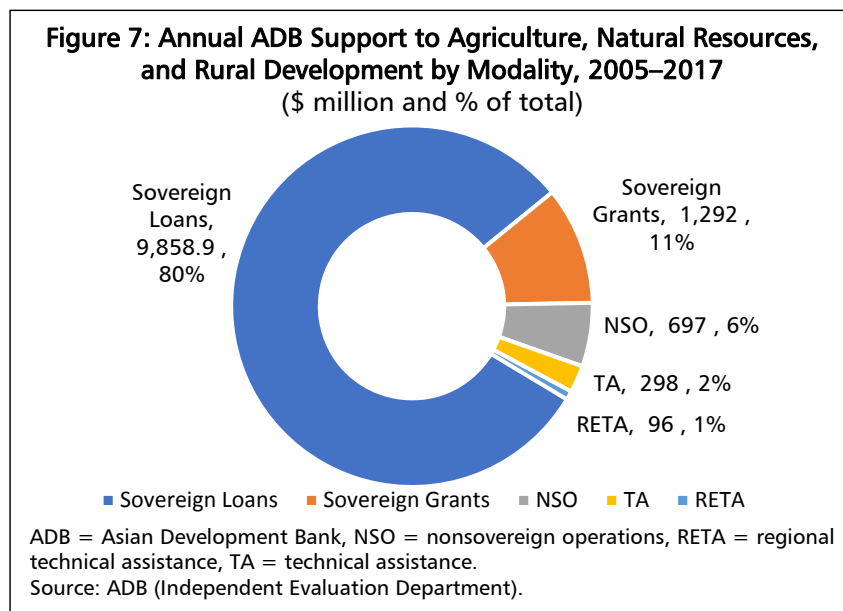
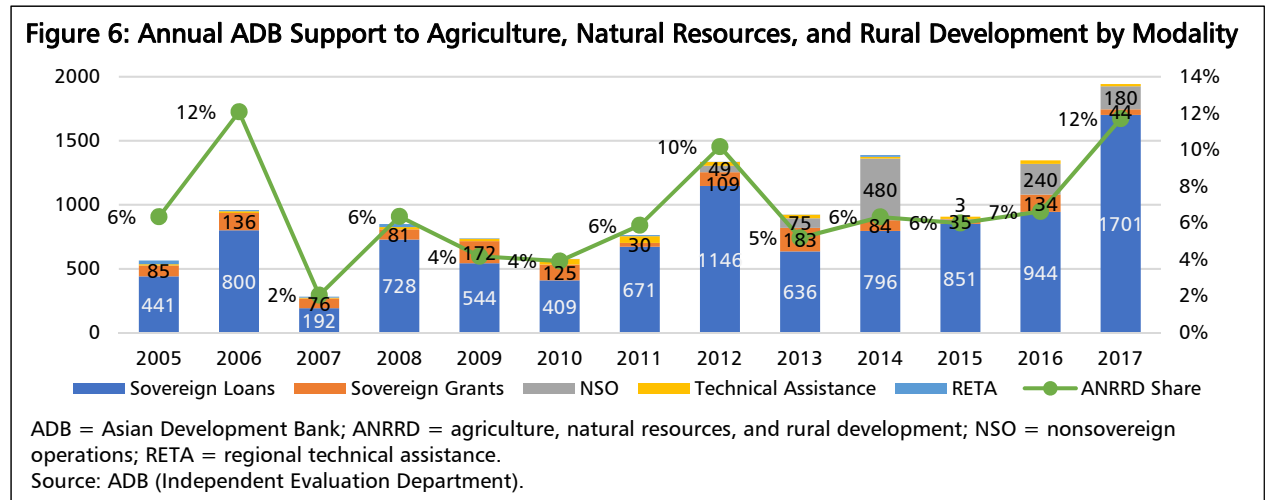
50. **During its first decade (starting in 1967), agriculture was one of the main sectors supported by ADB along with energy, and transport.** Initially, ADB support for agriculture was largely for strengthening food security; later, it would be for promoting rural employment. One main area of focus was irrigation—a key input for the Green Revolution needed to improve agricultural productivity. Agriculture and rural development grew into a top priority and agriculture was the largest share of lending into the 1980s. ADB also began to support the sector more broadly through policy and sector loans.⁴⁰

51. **However, from the 1980s to the 1990s, the share of ADB lending to agriculture fell (from 31% to 16%).** The move away from lending for agriculture was quite marked. And the decrease in lending became even more pronounced throughout the decade. The decline partly reflected the considerable practical difficulties ADB had experienced in supporting agriculture projects and partly also the preferences of borrowing countries such as India and the PRC which generally preferred to borrow for projects in energy and transport. Agriculture continued as an ADB priority given the importance for food security and poverty reduction although its share of ADB lending continued to fall through the early 2000s.⁴¹

⁴⁰ ADB. 2017. *Banking on the Future of Asia and the Pacific: 50 years of the Asian Development Bank*. Manila.

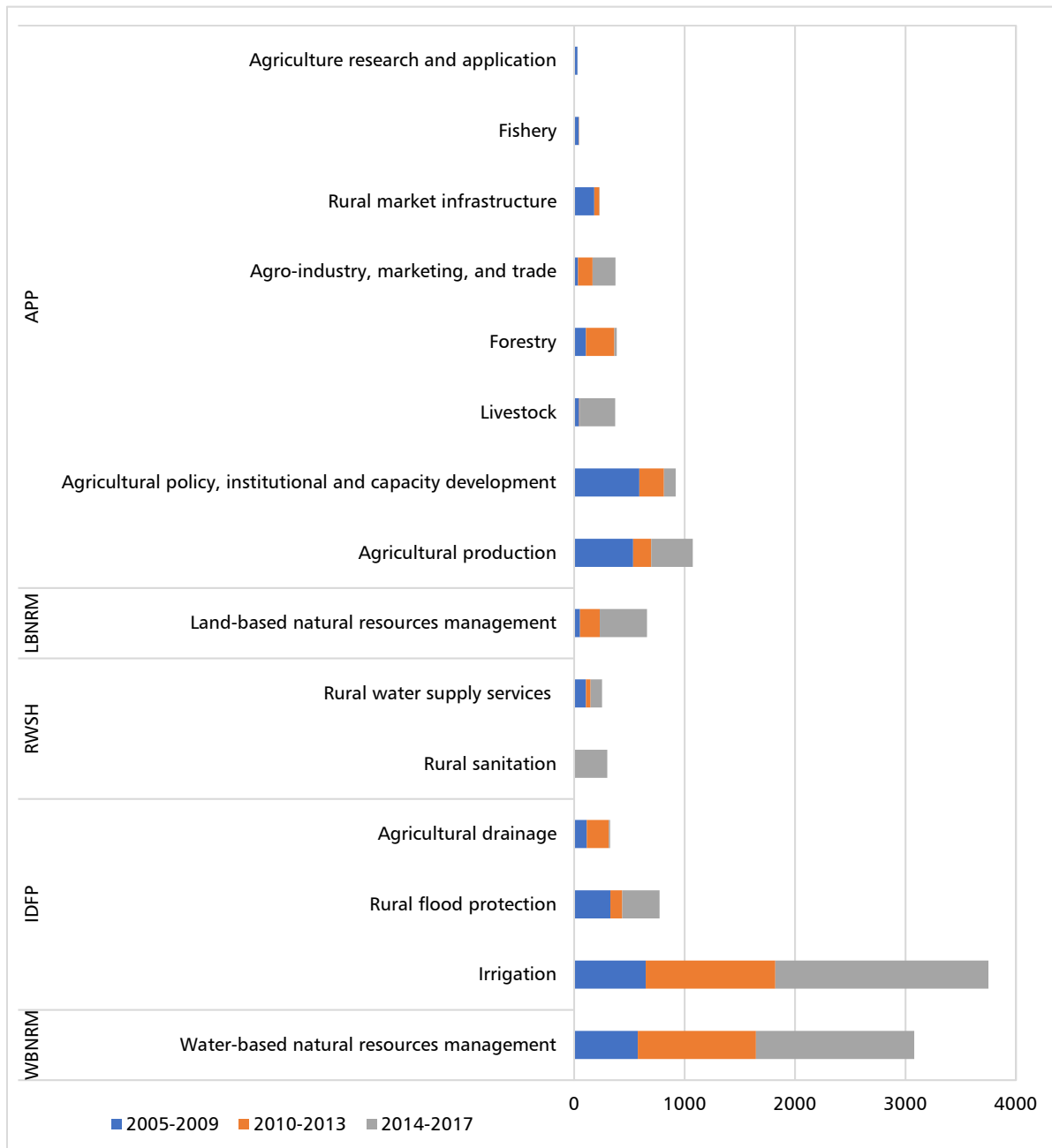
⁴¹ ADB. 2017. *Banking on the Future of Asia and the Pacific: 50 years of the Asian Development Bank*. Manila.

52. For the evaluation period 2005–2017, ADB approvals for the ANRRD sector amounted to \$12.2 billion. ANRRD lending as a share of total ADB lending for the 2005–2017 period fluctuated between 2% and 12% (Figure 6). There has been an underlying upward trend since 2010, when the 2009 operational plan came into effect. Throughout the review period, sovereign loans and grants accounted for 91% of ADB’s financial support, nonsovereign operations for 8%, TA for 2%, and regional technical assistance (RETA) for 1% (Figure 7).



53. Subsector shares across modalities increased significantly over the period, particularly for irrigation and water-based natural resources projects. Irrigation and water-based natural resources make up more than half of the total portfolio during the evaluation period. Figure 8 shows the level of approvals by individual subsectors and by the five major subsector groups. ADB supported 15 out of the 17 ANRRD subsectors. The other two subsectors were rural solid waste management and agriculture and rural sector development.

Figure 8: ADB Support to Agriculture, Natural Resources, and Rural Development by Subsector Group and Subsector, 2005–2017



ADB = Asian Development Bank; APP = agriculture policy and production; IDFP = irrigation, drainage, and flood protection; LBNRM = land-based natural resources management; RWSH = rural water, sanitation, and hygiene; WBNRM = water-based natural resource management.

Source: ADB (Independent Evaluation Department).

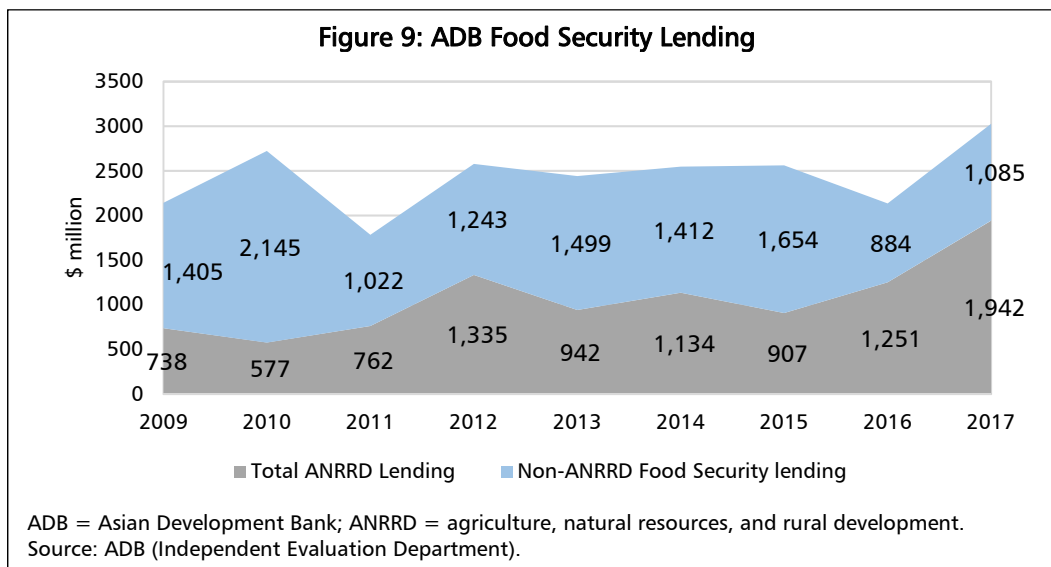
54. **ADB has consistently⁴² exceeded the \$2 billion annual approval target for ANRRD and food security set in the 2009 operational plan.⁴³** ADB has monitored non-ANRRD support for food security since the approval of the plan. It exceeded the \$2 billion target in each year apart from 2011, with most

⁴² With a small shortfall in 2011.

⁴³ The \$2 billion target and the 2009 operational plan as well as other guiding strategies are discussed in Chapter 3.

of the support coming indirectly from non-ANRRD interventions—predominantly in transport and communications, finance, and multisector operations. In 2017, ANRRD lending alone approached the \$2 billion target (Figure 9). A review of the ANRRD portfolio found that a number of ANRRD tagged projects in the rural water supply, sanitation, and water-based natural resource management, while well designed projects supporting the environment, did not directly support food security.

55. **A spot check of the non-ANRRD projects contributing to food security found inconsistencies.** Projects that only tangentially supported food security (e.g., Broadband for Development Project) had been included,⁴⁴ while others that had made a much more direct contribution (e.g., Inclusive Micro, Small, and Medium-Sized Enterprise Development Project)⁴⁵ had not been included. These excluded projects mean that ADB may be making a greater contribution to food security, particularly through its sovereign and nonsovereign micro and SME enterprise support, than has been acknowledged. PSOD estimates that the indirect impact on the ANR sector through financial intermediaries is even greater (in \$ terms) than the impact of direct support to agribusiness. In the 2012–2017 period, PSOD estimate that more than \$1 billion has been allocated to the ANR sector (including farmers and SMEs) through nonsovereign lending to commercial banks, NBFCs, and MFIs. In addition, during the same period, the trade finance program has supported a substantial number of deals trade in the food and agriculture sector. Without better tracking, and clarity between PSOD and SDCC estimates, opportunities to develop better synergies with the rest of the agriculture and food security portfolio may be lost. The remainder of the analysis here focuses on ADB’s ANRRD interventions, analyzed across three time periods: 2005–2009, the years before the Operational Plan for Sustainable Food Security was approved; and two 4-year periods thereafter—2010–2013 and 2014–2017.



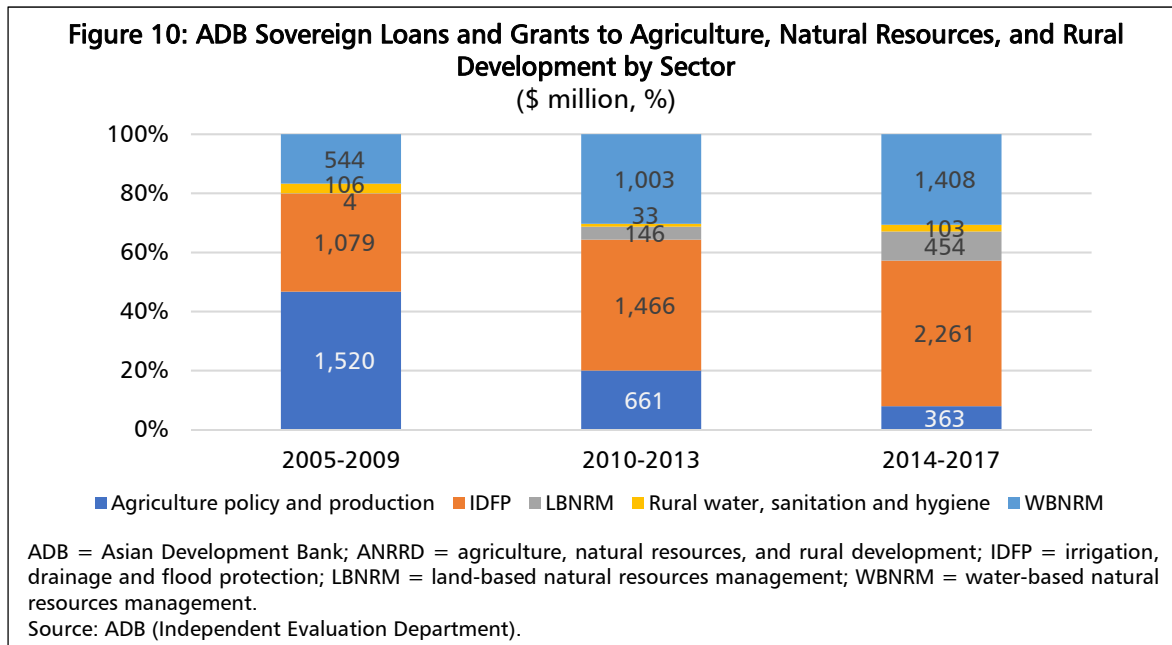
B. Trends

1. Sovereign Loans and Grants

56. **The annual volume of approved sovereign loans and grants for ANRRD has risen steadily.** The annual average increased from \$650 million in the 2005–2009 period to about \$827 million in 2010–2013, and to \$1.15 billion in 2014–2017 (Figure 10).

⁴⁴ ADB. 2012. *Report and Recommendation of the President to the Board of Directors: Proposed Loan and Grant to the Solomon Islands for the Broadband for Development Project*. Manila.

⁴⁵ ADB. 2012. *Report and Recommendation of the President to the Board of Directors: Proposed Loan and Grant to the Maldives for the Inclusive Micro, Small, and Medium-Sized Enterprise Development Project*. Manila.



57. **The most significant trend is the sharp, steady decline in the lending for agricultural policy and production and the increase in lending for the water-related subsectors.** Considering the continued importance of the agricultural sector in all DMCs, the decline in the share of agriculture policy and production lending from 47% in 2005–2009 to 8% in the 2014–2017 period was somewhat unexpected. Offsetting this decline, lending for irrigation, drainage, and flood protection as well as for water-based natural resource management increased sharply from 50% to 80% over the same period. ADB support for land-based natural resource management has also reached a significant level starting from a very low base before 2009.

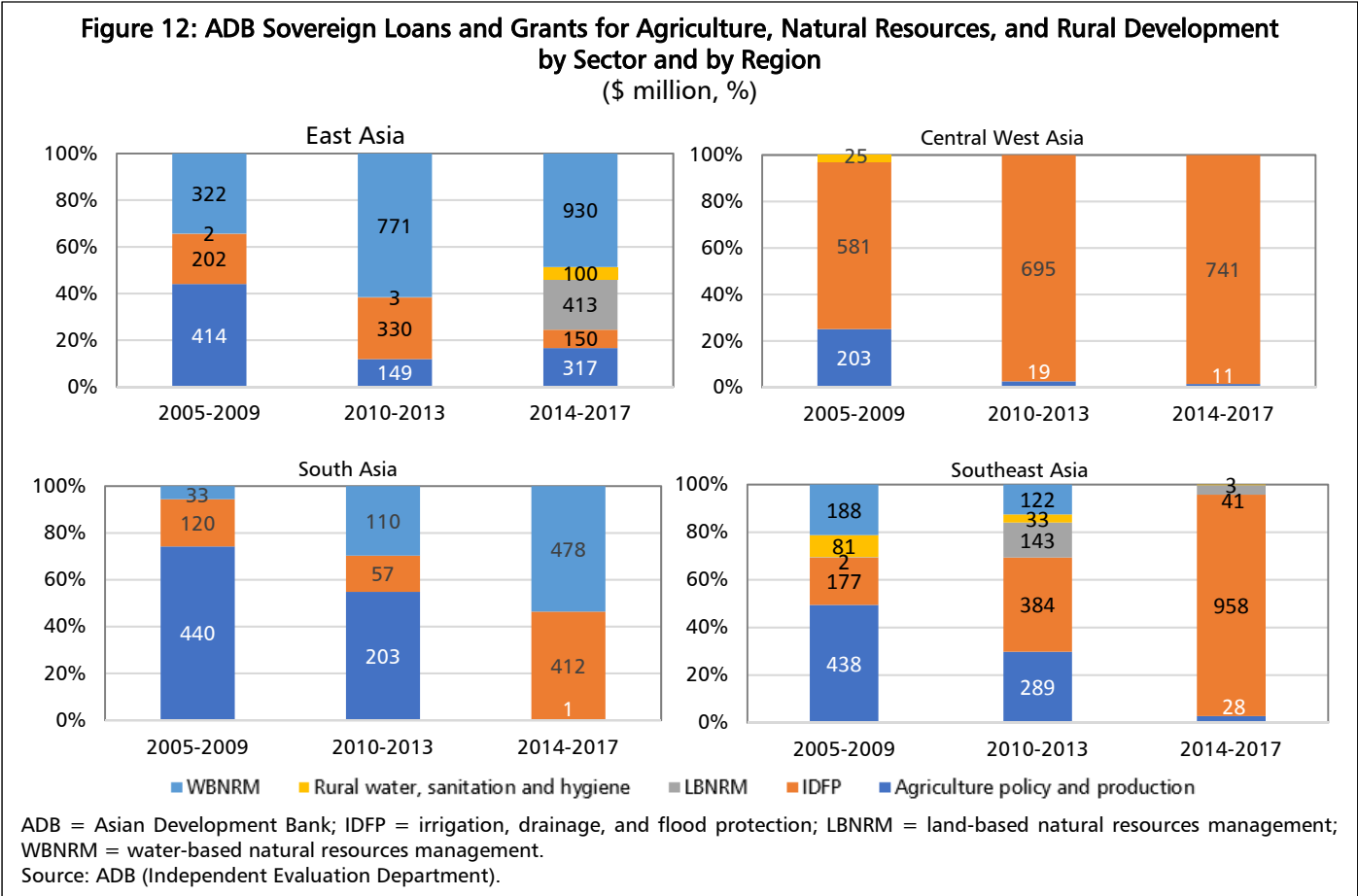
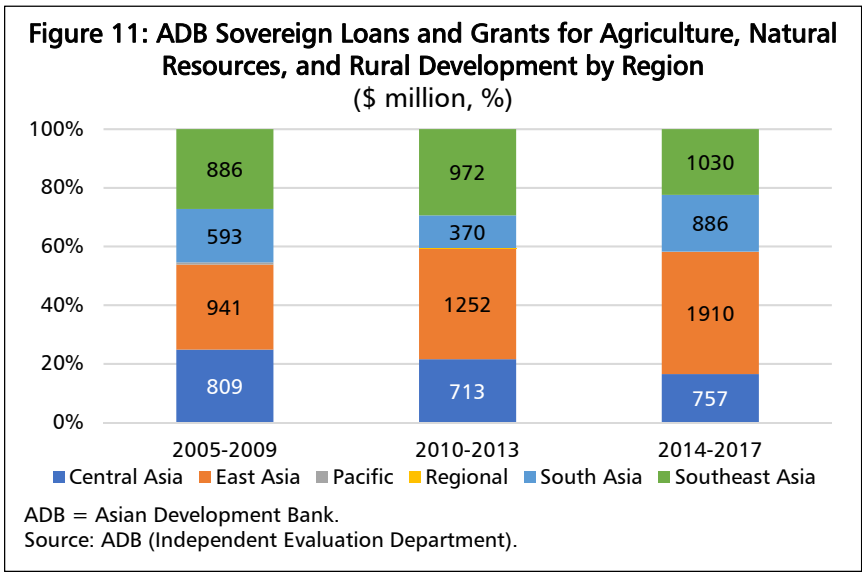
58. **While there are 17 subsectors for ANRRD in the ADB project classification system, at least five have had minimal or no investments over the evaluation period.** There were no sovereign loans and grants to support the rural sanitation subsector during the period (there was only one project that was classified under rural sanitation, the Rural Smart Wastewater Treatment Project approved in 2014 under nonsovereign operations).⁴⁶ Support for (i) agriculture research and application; (ii) rural water policy, institutional, and capacity development; (iii) fishery; and (iv) rural market infrastructure subsectors was also limited to 1–2 projects amounting to no more than \$70 million for each subsector. Lending to these subsectors ceased after 2010, with the exception of some resurgence of support to the fishery subsector in 2017, albeit with a relatively small loan amount of \$1.3 million for Sri Lanka’s Northern Province Sustainable Fisheries Development Project.⁴⁷

59. **Analysis of project components shows a low share of lending for support directly linked to agricultural productivity, production and value chains and a high share for irrigation and other water-related infrastructure.** The analysis above is based on the classification of projects into the five subsector groups. Most projects also include components in other subsectors. Analysis of these components yields a somewhat different picture. For example, the share of components directly linked to agriculture (agriculture productivity, agricultural value chains, and agribusiness support) falls to less than 8% of total lending compared to the much higher numbers shown by the subsector analysis. Importantly, the analysis of sovereign operations shows rather limited support for capacity development (about 4.5% of total project cost) and negligible support for policy analysis and formulation.

⁴⁶ ADB. 2014. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to Sound Global Ltd. and Beijing Sound Environmental Engineering Co., Ltd. for the Rural Smart Wastewater Treatment Project in the PRC.* Manila.

⁴⁷ ADB. 2017. *Project Design Advance: Northern Province Sustainable Fisheries Development Project in Sri Lanka.* Manila.

60. **Lending to East Asia has increased markedly while that to the Pacific has been very limited.** The greatest proportion of support has been directed at East Asia, \$4.1 billion or 37% of the ANRRD portfolio. The distribution across regions (Figure 11) shows that lending to East Asia increased by close to \$1 billion, accounting for a significant proportion of the overall increase. Lending to South Asia increased by 33% from \$593 million in 2005–2009 to \$886 million in 2014–2017. Lending to Southeast Asia also increased, albeit by 16% from \$886 million in 2005–2009 to \$1 billion, while that to Central and West Asia slightly decreased from \$809 million to \$757 million during the same period. Lending to the Pacific region has been very limited, amounting to a total of \$31 million over the entire period, or 0.3% of the total ANRRD portfolio. Figure 12 provides a breakdown of ANRRD lending by subsector in ADB’s five regions. The composition and trend by region are discussed below.



61. **Support in Central West Asia focused on one sector.** While support to the region was relatively diverse during 2005–2009, during 2010–2017 it was almost entirely for irrigation, drainage, and flood protection.

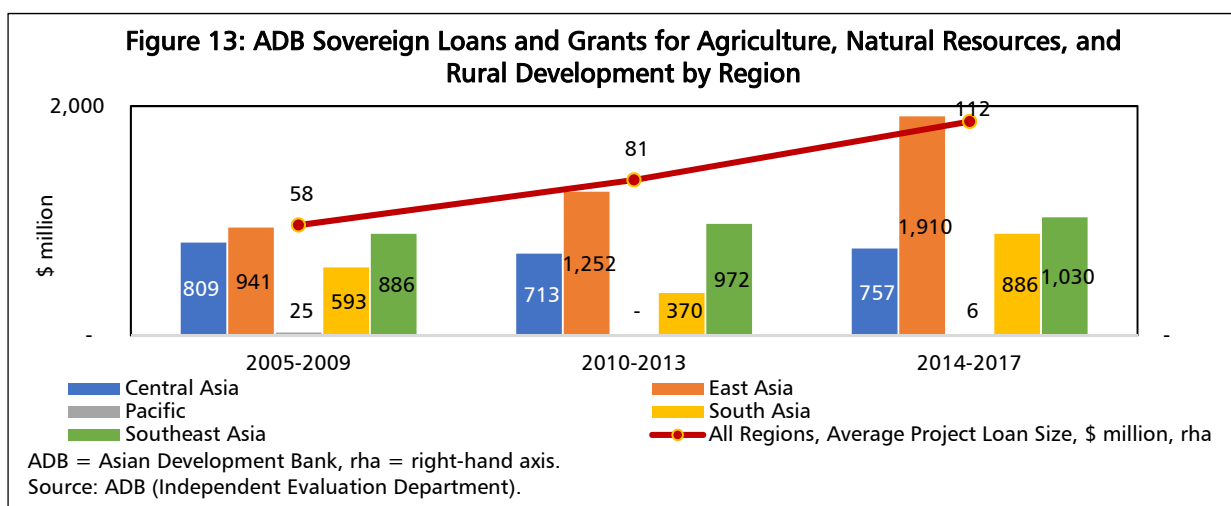
62. **In East Asia, there was a sharp increase (140%) in lending support for water-based natural resource management.** In particular, lending to the water infrastructure subsector increased from \$332 million (34% of ANRRD support in 2005–2009) to \$930 million (49% in 2014–2017). Much of this was for the PRC. Land-based natural resource management rose from minimal levels in 2005–2013 to \$413 million in 2014–2017. Support for agricultural policy and production as well as rural development picked up in the most recent period.

63. **ADB’s limited activity in the Pacific was focused on agricultural policy and production.** The support to the region decreased from \$28 million during 2005–2009 to less than \$6 million in 2014–2017. The portfolio comprised a \$25 million loan to Fiji, two small grants (\$5.8 million) to Samoa, and three TA operations (\$3.2 million) to Fiji, Kiribati and the Solomon Islands. ADB is currently contributing indirectly to the ANR through various interventions, for example developing logistics platform for agriculture produce under a road project in PNG, improving public sector management for marine protected areas in Kiribati, protecting marine ecosystem under a climate change project in PNG, and promoting coffee business in Timor-Leste.

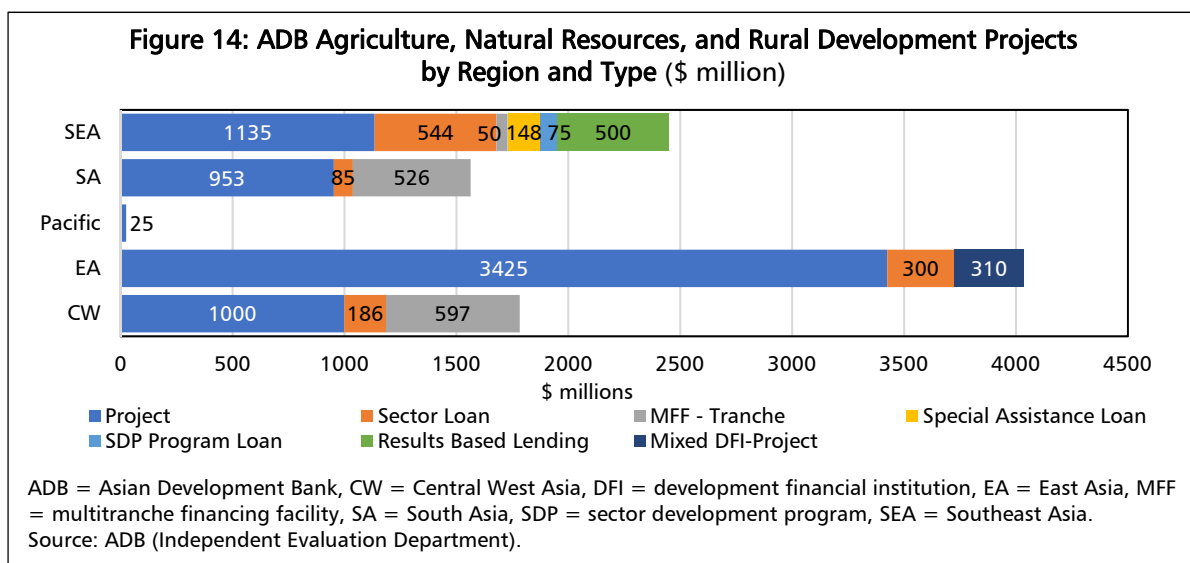
64. **In South Asia, there was a sharp increase in water-related operations.** Support for irrigation, drainage and flood protection increased from \$119 million in 2005–2009 to \$412 million in 2014–2017, while that for water-based natural resource management rose significantly from \$33 million to \$478 million over the same period. In contrast, lending for agricultural policy and production declined from \$440 million or 74% of the 2005–2009 ANRRD support to zero in the most recent period.

65. **Irrigation, drainage and flood protection was the only subsector group that saw an increase in the Southeast Asia region and this was almost six-fold from \$177 million in 2005–2009 to \$958 million in 2014–2017.** Activity in all other subsector groups declined. There was minimal activity for agricultural policy and production, natural resources management (land- and water-based), rural water, sanitation and hygiene in the most recent period.

66. **There has been a clear and significant shift to larger operations across all regions.** The average size of operations increased from \$58 million in 2005–2009 to \$112 million over the 2014–2017 period (Figure 13). In 2017, the six largest loans accounted for \$1.5 billion of lending; the average size of all approvals in the same year rose to \$160 million.



67. ADB has supplemented project loans to the ANRRD sector with a number of other instruments (Figure 14). The irrigation, drainage and flood protection and water-based natural resource management subsector groups benefited from a number of sector loans and multitranche financing facilities. The Integrated Participatory Development and Management of Irrigation (Indonesia) was supported through ADB's first results-based loan (RBL) to the sector of \$500 million in 2017.⁴⁸ The RBL is a potentially useful instrument for supporting large projects with many smaller activities and allows ADB to provide broader institutional support across the program. It will be important see how this RBL progresses. The largest sector loan (\$200 million) was for Hunan Flood Management (PRC) in 2006.⁴⁹ The Punjab Irrigated Agriculture Investment Program (Pakistan)⁵⁰ was supported by a multitranche financing facility with 4–5 tranches. ADB has also provided special assistance loans for Emergency Food Assistance⁵¹ and Flood Damage Emergency Rehabilitation (Cambodia).⁵² Also in Cambodia, ADB has two examples, the Climate-Resilient Rice Commercialization Sector Development Program⁵³ and the Water Resources Management Sector Development Program,⁵⁴ of combing policy and investment loans to address both policy constraints and invigorate production.



2. Non-Asian Development Fund Grants

68. The ANRRD program has been supported by non-Asian Development Fund grants. The Japan Fund for Poverty Reduction was the largest non-Asian Development Fund (ADF) source for grant funding, providing \$123 million during the 2005–2017 period. ANRRD operations financed by ADB also tapped funding from the United Kingdom (\$67.5 million), the Global Environment Facility (GEF, \$60.3 million),

⁴⁸ ADB. 2017. *Report and Recommendation of the President to the Board of Directors: Proposed Results-Based Loans to Indonesia for the Integrated Participatory Development and Management of Irrigation Program*. Manila.

⁴⁹ ADB. 2006. *Reports and Recommendations of the President to the Board of Directors: Proposed Loan and Technical Assistance Grant to the People's Republic of China for the Hunan Flood Management Sector Project*. Manila.

⁵⁰ ADB. 2006. *Report and Recommendation of the President to the Board of Directors: Proposed Multitranche Financing Facility to Pakistan for the Punjab Irrigated Agriculture Investment Program*. Manila.

⁵¹ ADB. 2008. *Reports and Recommendations of the President to the Board of Directors: Proposed Loan and Asian Development Fund Grant to Cambodia for the Emergency Food Assistance Project*. Manila.

⁵² ADB. 2012. *Reports and Recommendations of the President to the Board of Directors: Proposed Loan and Administration of Grant to Cambodia for the Flood Damage Emergency Reconstruction Project*. Manila; ADB. 2014. *Report and Recommendation of the President to the Board of Directors: Proposed Loan for Additional Financing and Administration of Grant for Additional Financing to Cambodia for the Flood Damage Emergency Reconstruction Project*. Manila.

⁵³ ADB. 2013. *Report and Recommendation of the President to the Board of Directors: Proposed Loans and Administration of Grants and Loan to Cambodia for the Climate-Resilient Rice Commercialization Sector Development Program*. Manila.

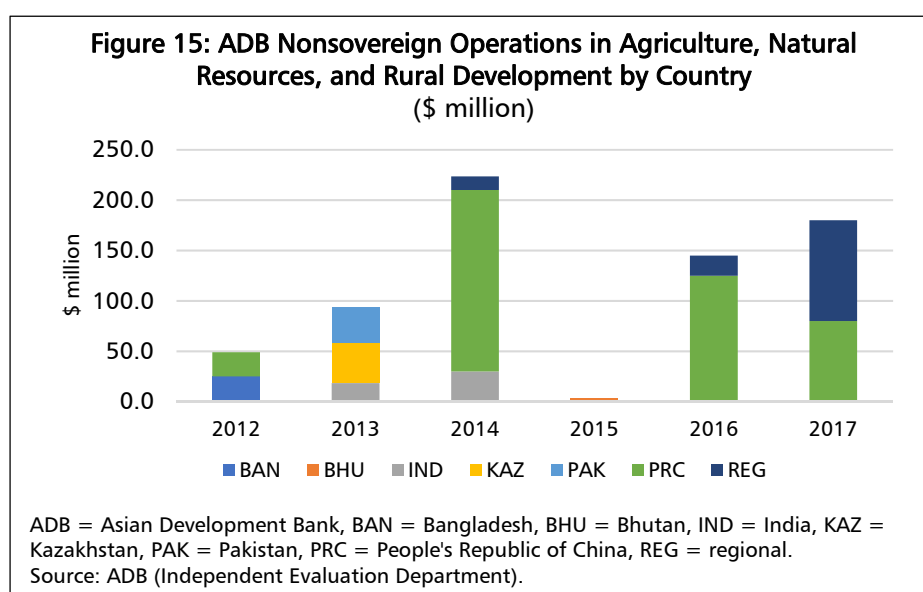
⁵⁴ ADB. 2015. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the Kingdom of Cambodia for the Uplands Irrigation and Water Resources Management Sector Project*. Manila.

and the strategic climate funds of the Pilot Program for Climate Resilience (\$57 million), among other sources.

69. **In terms of focus, almost half of the total amount of non-ADF grants was directed at agriculture policy and production.** The other 45% of non-ADF grants supported the irrigation, drainage and flood protection and water-based natural resources management subsector groups. The bulk of the non-ADF grants were concentrated in Southeast Asia (\$229 million, 38%), Central West Asia (\$176 million, 29%) and South Asia (\$140 million, 23%).

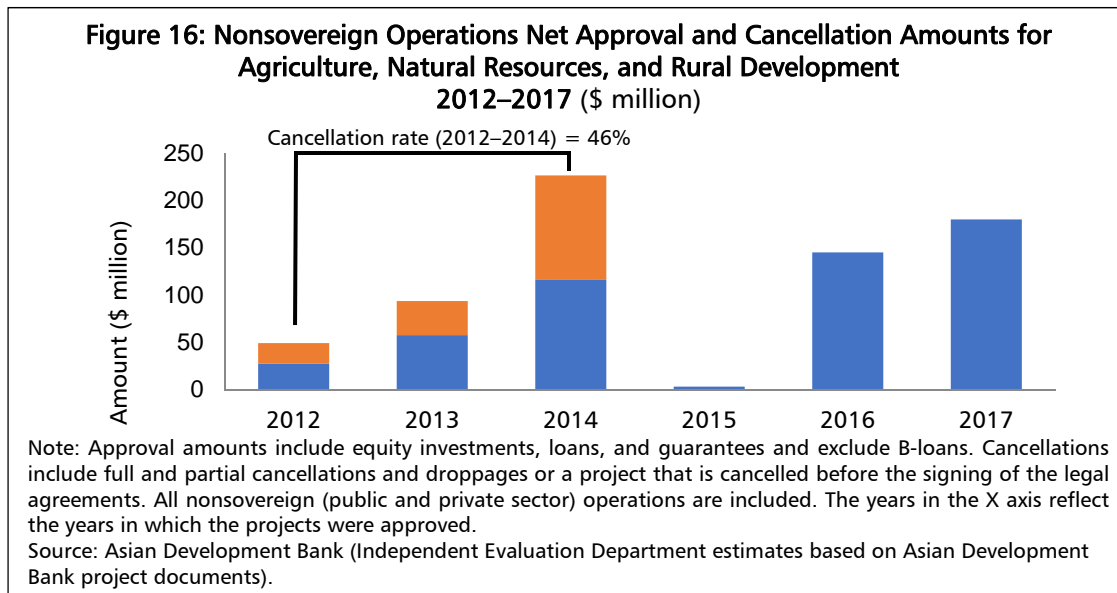
3. Nonsovereign Operations

70. **Nonsovereign ANRRD operations that began in 2012 do not yet show a clear trend.** The first two nonsovereign projects approved for the sector in 2012 were the \$25 million PRAN Agribusiness Project in Bangladesh and the \$24 million Tianjin Cold Chain Logistics Facility Development Project in the PRC. There were no approved nonsovereign operations for 2005–2011 for ANRRD, hence, for 2012–2017, total ADB nonsovereign operations in the ANRRD sector amounted to \$697 million, averaging \$116 million per year. This was achieved through a mix of small and large loans with some equity investment and one guarantee. Nonsovereign support peaked in 2014 with a total investment of \$226 million, but annual support fell to only \$3 million in 2015 (Figure 15). The PSOD agribusiness investment unit plausibly explains this mix of very large and very small operations as a deliberate attempt to provide volume, visibility, and hopefully lower risk to this relatively new business line through large operations and reach the less developed or smaller DMCs through smaller operations.



71. **Geographically, excluding the regional projects, the scope of nonsovereign support to ANRRD was limited to six countries: Bangladesh, Bhutan, the PRC, Kazakhstan, India, and Pakistan.** When regional agribusiness operations are included, Viet Nam, Timor-Leste, Papua New Guinea, Indonesia and Cambodia have benefitted. The approvals reflect a 59% concentration (\$409 million out of total \$697 million approved nonsovereign operations during the period by volume) in the PRC. This partially reflects the generally larger operations in the PRC. By number of approvals, the PRC is about 40%. PSOD has also cofinanced five of these projects with other development partners. Four projects supported ADB's regional integration objective. As expected, support focused on agriculture policy and production (86%), and was spread across agricultural production, markets, agro-industry and livestock. A rural development operation (\$100 million) supported rural sanitation in the PRC. While classified ANRRD, this project was not undertaken by the agribusiness team.

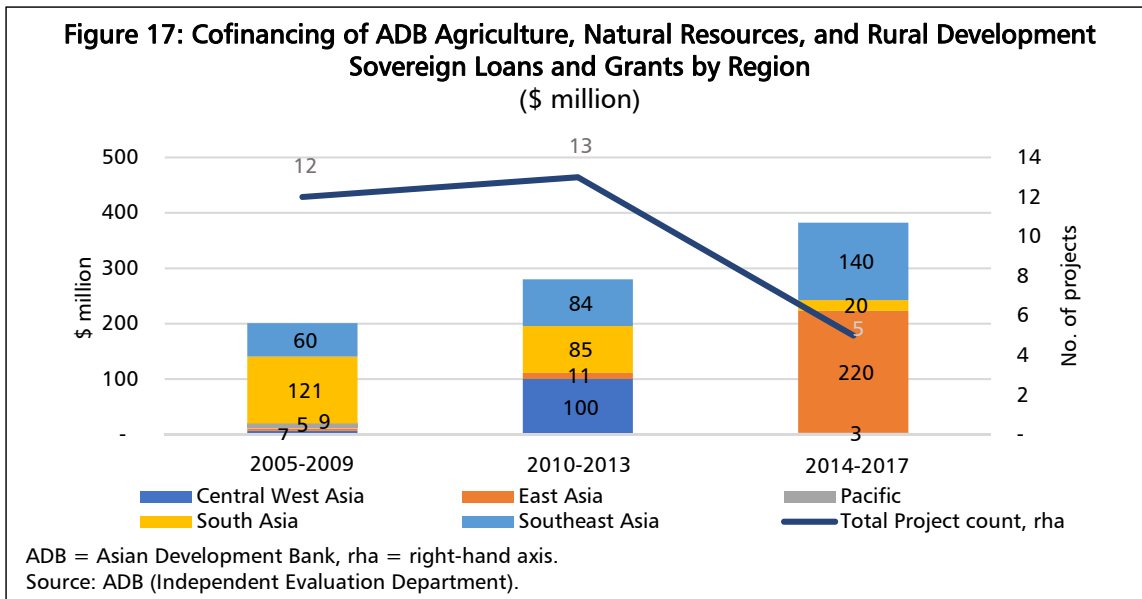
72. **Cancellations of nonsovereign operations for ANRRD were above the ADB average.** For 2012–2017, the cancellations for nonsovereign operations in the ANRRD sector reached \$169 million, or 24% of total approvals during the period (Figure 16), while the ADB-wide nonsovereign operations cancellation rate was 12.5% for all sectors. Annual cancellations for ANRRD nonsovereign operations increased for the years 2012–2014, reaching almost half of the total approvals over this period. Full cancellations were observed for two operations: the Horticulture Cold Chain Project in India⁵⁵ and the Rural Smart Wastewater Treatment Project in the PRC. Partial cancellations for the other operations ranged from 37% to 52% of the approved investment amounts. Thus far, there have been no cancellations for the more recently approved operations in 2015–2017.



4. Cofinancing

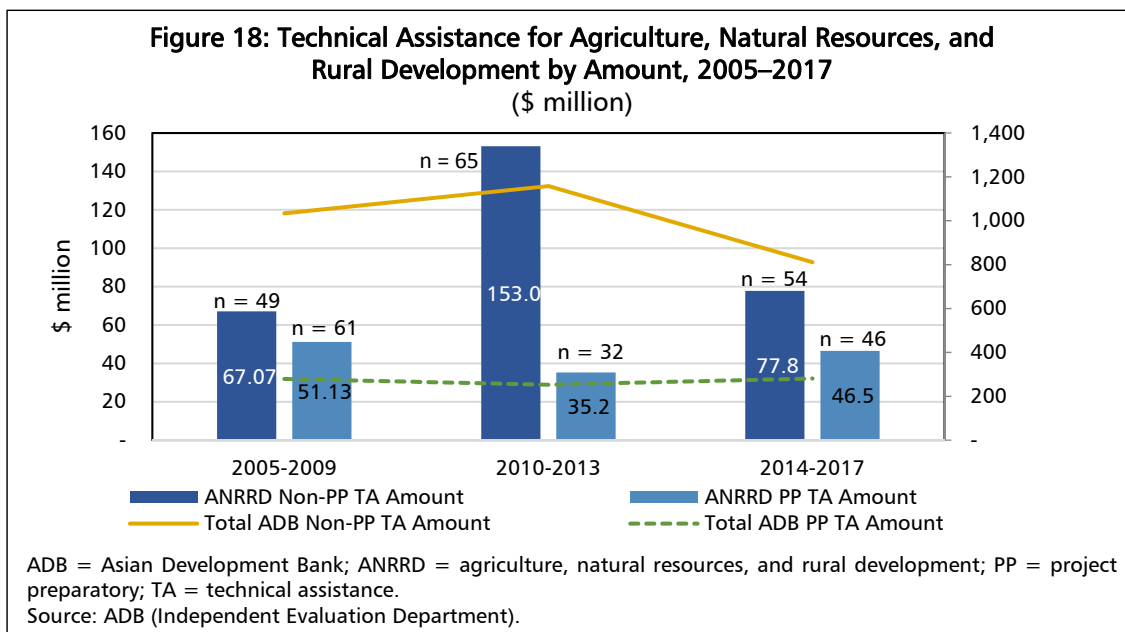
73. **Cofinancing has been rising in absolute terms and overall represents 8% of ADB financing during 2005–2017 (Figure 17).** One-fourth of the ANRRD operations benefited from cofinancing for a total amount of \$863 million in the 2005–2017 period. Of the total of 24 development partners, five—ASEAN Infrastructure Fund, European Investment Bank, IFAD, Japan International Cooperation Agency, and Department for International Development of the United Kingdom—provided 70% of the total cofinancing during this period. In the case study countries, cofinancing was provided by GEF, IFAD, Japan Fund for Poverty Reduction, the Global Agriculture Food Security Program and other bilateral agencies. Operations in Bangladesh, Cambodia, the PRC, Indonesia, and Uzbekistan attracted most of the cofinancing. Nonsovereign operations attracted additional financing through B-loans.

⁵⁵ ADB. 2013. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to Champion Agro Limited for the Horticulture Cold Chain Project in India*. Manila.

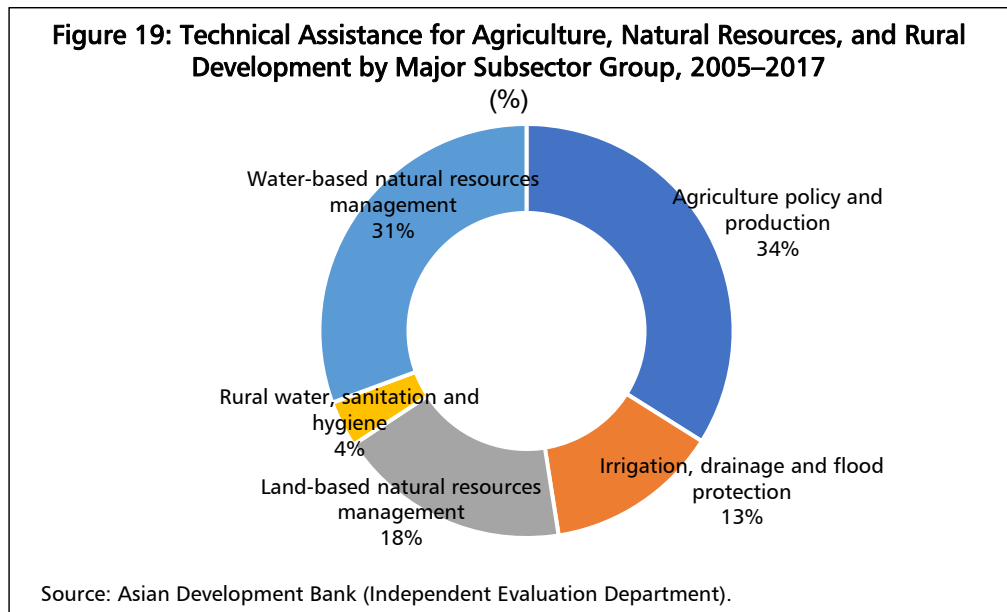


5. Technical Assistance

74. **Technical assistance (TA) to ANRRD was cut in half between 2010–2013 and 2014–2017 (Figure 18).** TA support for ANRRD showed an interesting trend—average annual support tripled from \$13 million in 2005–2009 to \$38 million in 2010–2013, and then fell to \$19 million in the 2014–2017 period. For 2005–2017, average TA support amounted to \$23 million per year while total TA support over the 2005–2017 period amounted to \$298 million. Much of the increase and decline in TA was due to external cofinancing primarily for environmental and biodiversity programs. The volume of resources available for ADB-wide PPTA (green line) was relatively constant over the three periods with a small decrease in the middle period (2010–2013). However, ANRRD PPTA accounted for about half of the decline, a very large share considering there are nine sectors. This may be due to the slow response in reengaging in the sector and the move to fewer and larger projects. However, in the most recent period (2014–2017), while ADB-wide PPTA continued to decline, there was an increase in ANRRD PPTA.



75. **Almost half of the TA projects approved during the evaluation period supported natural resource management.** Water-based natural resource management TA projects accounted for \$91 million while \$54 million was for land-based natural resources management. More than one third of the TA support (\$101 million) focused on the agriculture policy and production subsector group (Figure 19).



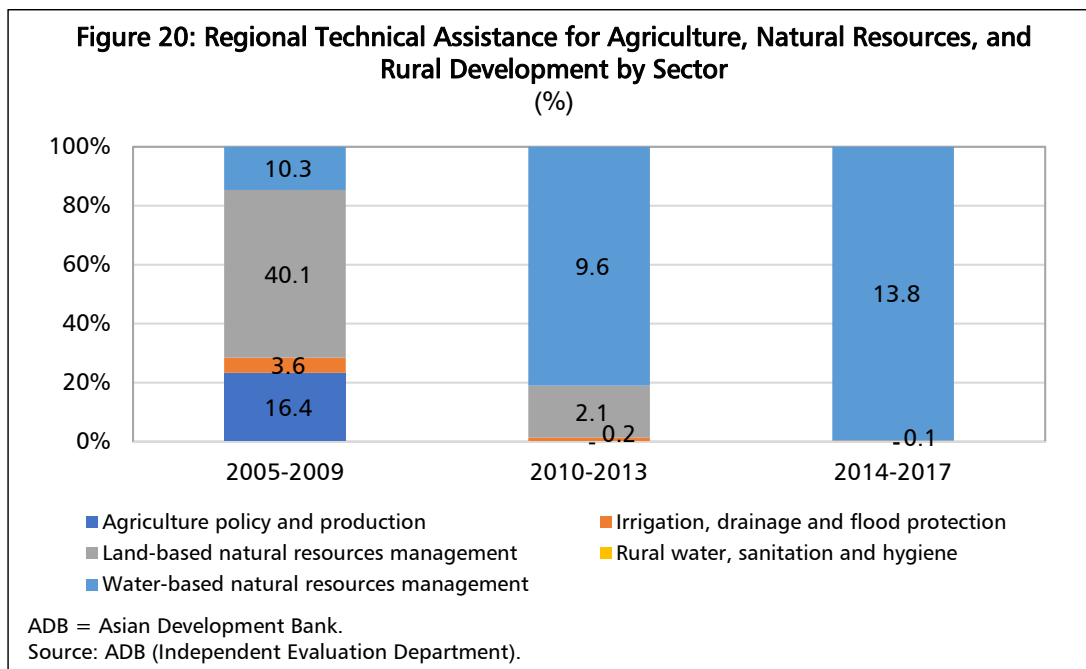
76. **Geographically, while almost 40% of the TA projects were regional in scope, a significant portion of the TA projects supported Southeast Asia (\$91 million, 31%) and East Asia (\$47 million, 16%).** At the country level, the lion's share of the TA projects went to the PRC (\$37 million), Cambodia (\$27.0 million), Indonesia (\$24.5 million) and Viet Nam (\$18.1 million). All other countries received less than \$10 million each during the period.

77. **Seven large TA projects accounted for more than \$70 million.** The two largest of these, the Core Environment Program and Biodiversity Conservation Initiative (CEP-BCI) in the Greater Mekong Subregion (GMS) and the Program for Coastal and Marine Resources Management in the Coral Triangle, accounted for the spike in the 2010–2013 period. Others include GMS Core Agriculture Support Program I and II. The greater part of TA support benefited agricultural policy and production (\$100 million, 33% of total TA support) and water-based natural resource management subsector groups (\$91 million, 30%). While stand-alone TA increased, TA attached to a loan declined over the period. More than half the TA projects (\$158 million, 53%) focused on capacity development, while the rest supported policy and advisory support (\$118.8 million), and research and development (\$20.4 million). TA support was generally modest during the evaluation period, averaging \$23 million per year. At the regional level, the majority of the TA projects were in Southeast Asia (again due mainly to the GMS CEP-BCI) but, at the individual country level, the PRC received the highest share (\$37 million).

6. Regional Technical Assistance

78. **The amount allocated to RETA declined by 75% over the period.** The average annual amount dropped from \$14.1 million in 2005–2009 to \$3.5 million in the most recent 4 years. For 2005–2017, RETA support to ANRRD amounted to \$96.1 million, 1% of the total portfolio. The two largest programs supported through RETA were the support for the CEP-BCI in the GMS and the Knowledge and Innovation for Water Financing Program. At the subsector level (Figure 20), water-based and land-based natural resources management accounted for about 80% of the total RETA portfolio, agricultural production and markets for another 15%, and none for rural water, sanitation and hygiene. While RETA was distributed

across all sectors except rural development in 2005–2009, it was entirely concentrated in water-based natural resource management in 2014–2017. In the past, RETA was used to support a sizable agricultural research program, where ADB previously had a target of \$5 million annually.

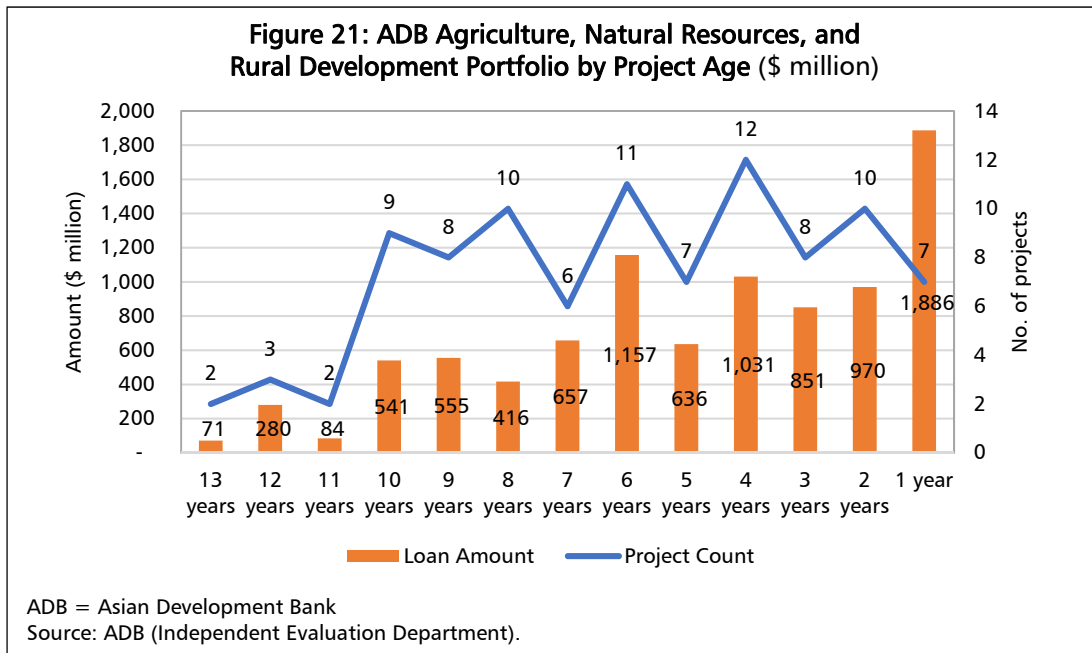


7. Active ANRRD Portfolio

79. **At the end of 2017, there were 95 active ANRRD operations in the ADB portfolio.** A total of 125 ANRRD operations with a total loan amount of \$9.8 billion were approved during the evaluation period (2005–2017); 95 of these operations are still active. Disbursements thus far amount to \$4.4 billion.

80. **On average, implementation of ANRRD projects was slower than the ADB average.** Of the 54 operations approved in 2005–2010, 30, with a total loan amount of \$1.5 billion, have been completed, while 24 are still active. The average age of the active projects is between 9 and 13 years, while the average implementation time of completed projects was 8.1 years. By comparison, the average time to completion for all ADB projects is 7.2 years.⁵⁶ Figure 21 shows the age profile of the portfolio.

⁵⁶ ADB. 2018. *Development Effectiveness Report 2017*. Manila.



C. Summary

81. **Annual ANRRD approvals are increasing and approaching the \$2 billion annual food security target set by ADB, despite the limitations in the classification and monitoring.** Significant investment in irrigation and other water-related infrastructure has been increasing and this has helped ADB to approach the food security target. Consequently, lending linked directly to agricultural productivity, production and value chains, a continuing priority for the region and an important complement to investments in irrigation, has declined. This trend is easily missed in most analysis of ANRRD at the aggregate level. Tracking of investments outside ANRRD that contribute to food security has been inconsistent. ADB support for rural development and policy analysis and formulation through sovereign operations has likewise been negligible.

82. **At the regional level, the largest share of ADB's ANRRD investment goes to East Asia and at the individual country level it goes to the PRC.** Lending to East Asia increased by about \$1 billion between 2005–2009 and 2014–2017 and accounts for 37% of total ANRRD lending during the 2005–2017 period. ADB lending to the PRC alone accounts for 36% of total ANRRD lending. ADB's small but growing nonsovereign portfolio, mainly supporting value chain and agribusiness development, is also heavily concentrated on the PRC, accounting for 59% of the total ANRRD nonsovereign portfolio. Lending to the Pacific region has been very limited.

83. **ADB is supporting larger ANRRD projects and has diversified the instruments used to provide support to the sector.** The average size of ADB operations has more than doubled over the evaluation period. The lending modality has also diversified with the addition of a number of sector loans, multitranches financing facilities, and the first results-based loan to the sector in 2017. However, support through TA reduced by half over the evaluation period and that through RETA declined by three-quarters.

3

RELEVANCE OF STRATEGIC FRAMEWORK

Highlights

Over time, ADB moved away from agriculture by retiring policies, focusing its scope on fewer subsectors, and classifying agriculture as a noncore sector in Strategy 2020. This led to further retraction (e.g., the closing of the Agriculture and Environment Division in the Central and West Asia Department).

The 2007–2008 food price crisis was a key turning point for ADB’s reengagement with the sector. In response to the crisis, ADB developed operational plans, established an annual \$2 billion annual approval target for food security, and created an agribusiness unit. Food security and rural development were classified as a priority area in Strategy 2030.

While the operational plans are useful for signaling the importance of the sector, their value as guidance documents is limited, particularly for neglected subsectors (e.g., fisheries) and other priorities.

Half of the country partnership strategies during the evaluation period included agriculture. These were aligned with the productivity and market infrastructure elements of the operational plans. Climate change and natural resources were also consistently emphasized.

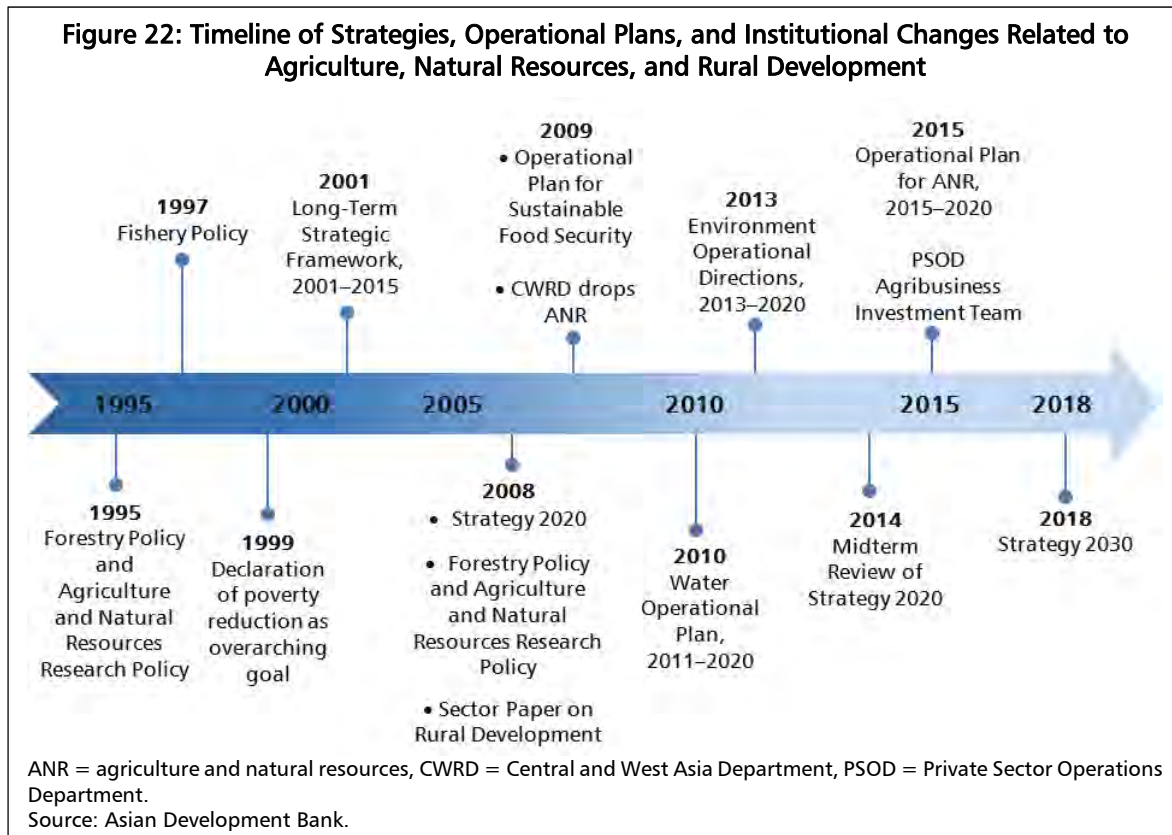
Support for agriculture value chains is also being more consistently included. However, key aspects of this, including reducing food loss, food safety, and nutrition as well as agricultural research receive limited attention.

A. Overview

84. **This chapter provides an overview and review of ADB’s guiding strategies for ANRRD.** It summarizes the evolution of the corporate strategies that led to Strategy 2020, which had a significant impact on ANRRD. The chapter also reviews the two operational plans for food security that were introduced to guide ANRRD work after Strategy 2020. It then considers ADB’s country strategies and how they responded to ADB priorities for ANRRD.

85. **The focus of ANRRD in strategic documents and its perceived role in meeting ADB’s overarching objectives first moved ADB away from agriculture and more recently led to it reengaging with the sector.** ADB’s ANRRD work has been guided and influenced by its overarching corporate strategies, internal operational plans, and CPSs. Figure 22 contains a timeline of key strategies, operational plans, and institutional changes that have influenced ADB’s ANRRD work, which explains ADB’s variable support for ANRRD.⁵⁷ The chapter assesses the adequacy and relevance of ADB’s ANRRD strategic framework.

⁵⁷ Based on the loans and grants data, 1997 ANRRD approvals were \$616 million or 6.6% of the total across all sectors. In 2007, the level of approvals went down to \$266 million or 2.1% of the total approvals. In 2017, ANRRD approvals amounted to \$1.9 billion or 11.7% of the total.



B. Corporate Strategies

86. **ADB's Poverty Reduction Strategy, 1999⁵⁸ stressed poverty reduction as ADB's overall goal and laid out priorities for its engagement in ANRRD.** It pledged to increase ADB's attention to the drivers of rural productivity and to areas that had been bypassed by the green revolution technology. It supported projects that directly impacted the rural poor, including investments in rural roads and electrification, water supply and sanitation, and promotion of SMEs in part through microfinance. Special emphasis was to be given to job creation and to increasing access to markets and services to improve the quality of life in rural areas. At the same time, ADB committed itself to redoubling its efforts to promote renewable energy and sustainable natural resource management. ADB's policy dialogue was expected to reflect these commitments and it was to continue to encourage DMCs to rationalize their agricultural subsidies.

87. **Even though ADB's Long-term Strategic Framework, 2001–2015, stated that rural development would remain an important part of ADB's work, its support for ANRRD began to decline.⁵⁹** While the framework acknowledged that most of the poor lived in rural areas and it touched on areas relevant to ANRRD, it did not discuss the topic specifically. For example, while noting that environmental degradation had begun to harm agricultural productivity and that ADB had set itself the challenge of helping to reverse environmental damage at no cost to economic growth, the framework did not present specific plans for rural development and agriculture. Similarly, while it noted ADB's intention to facilitate public-private partnerships to bring greater investment to sectors that could not provide it on their own, the framework did not indicate how integrating ADB's public and private sector operations would affect

⁵⁸ ADB. 1999. *Fighting Poverty in Asia and the Pacific: The Poverty Reduction Strategy of the Asian Development Bank*. Manila.

⁵⁹ ADB. 2001. *Moving the Poverty Reduction Agenda Forward in Asia and the Pacific: The Long-Term Strategic Framework of the Asian Development Bank (2001–2015)*. Manila.

agribusiness and rural economies. ADB's review of the Poverty Reduction Strategy, 2004 did not include substantive references to ANRRD either.⁶⁰

88. **While lending support to ANRRD reached its lowest level in 2007, that year also saw the publication of an ADB report that encouraged ADB to support ANRRD by focusing on its strengths in infrastructure development.** *Rural Poverty Reduction and Inclusive Growth*⁶¹ made recommendations for mainstreaming rural interventions in ADB operations, although it also recommended limiting ADB's engagement in the sector in recognition of the difficulty and challenges of working in this area, which had resulted in poor performances in the past. It suggested that ADB should prioritize those subsectors in which past projects had performed well, including rural infrastructure, microfinance, and agricultural support services. It recommended that this should occur in parallel with its withdrawal from the fisheries and livestock subsectors in which past operations had performed less well. It advised a shift from production-oriented food crop projects toward market-based initiatives focused on value addition.

89. **In 2008, Strategy 2020 prioritized three agendas and concentrated ADB's activities in five core areas.** This strategy, which sought to set the basic direction of ADB assistance for the coming decade, recognized the fast pace of change and economic growth in Asia and concluded that ADB should focus on the key remaining development challenges, particularly persisting poverty and rising environmental degradation. It prioritized three agendas: inclusive economic growth, environmentally sustainable growth, and regional integration. Given ADB's limited size and resources, it emphasized that it needed to be selective and to concentrate its resources and gain comparative advantage in particular areas of expertise. The strategy identified five core areas of operation that would receive a minimum of 80% of overall financing: (i) infrastructure, (ii) environment, (iii) regional cooperation and integration, (iv) financial sector development, and (v) education.

90. **Under Strategy 2020, agriculture and several other sectors were relegated to "noncore" status, leading the regional departments to give them lower priority in both their operations and staffing.** The Central West Department closed its Agriculture and Environment Division for several years. Strategy 2020 nonetheless identified natural resource management and regional integration as pillars of future ADB support for agriculture and rural development. Although Strategy 2020 acknowledged that "population growth, pressure on natural resources, competing food crop use, and the effects of extreme weather and climate change increase risks to future food security," it determined that ADB support for rural areas would largely be indirect and would focus on infrastructure, finance, and ICT. In sum, Strategy 2020 had not given any particular attention to agriculture and provided little guidance on how the ADB should respond to the food and fuel price increases that suddenly affected the region.⁶²

91. **The release of Strategy 2020 and the ADB's movement away from agriculture coincided with the 2007–2008 food price crisis.** For Asian countries and multilateral donors, including ADB, food security soon reemerged as an international and regional challenge. In response to the food price crisis and mounting concerns about Asia's long-term food security, ADB released an Operational Plan for Sustainable Food Security in 2009 (footnote 6). ADB also pledged to provide \$2 billion annually in lending for food security, a significant increase from the \$338 million committed for ANRRD in 2007. In its 2014 Midterm Review of Strategy 2020 Action Plan,⁶³ ADB recognized the importance of agriculture for the delivery of development outcomes and reiterated its commitment to invest \$2 billion annually for agriculture and food security.

92. **In 2015, ADB created the Agribusiness Investment Team (AIT) within the Private Sector Operations Department (PSOD).** This unit primarily provides nonsovereign lending and equity, as well as

⁶⁰ ADB. 2004. *Enhancing the Fight Against Poverty in Asia and the Pacific: The Poverty Reduction Strategy of the Asian Development Bank*. Manila.

⁶¹ ADB. 2007. *Rural Poverty Reduction and Inclusive Growth*. Manila.

⁶² ADB. 2017. *Banking on the Future of Asia and the Pacific: 50 years of the Asian Development Bank*. Manila.

⁶³ ADB. 2014. *Midterm Review of Strategy 2020 Action Plan*. Manila.

TA to enhance the development impact of operations. The rationale for the unit is provided in the memorandum establishing the unit and is described on the ADB website. PSOD also has a business plan power point presentation outlining the portfolio and pipeline of potential investments. While useful the business plan is not linked to an overall strategy. To date, the AIT, has taken an opportunistic approach to identifying investment opportunities. PSOD does not have a separate guidance document for agribusiness. This may have been a practical initial approach, particularly given its limited staff resources and small portfolio; however, now that the unit is established a guiding strategy for growing the portfolio given the unit's capacity constraints is needed. Other organizations, including the European Bank for Reconstruction and Development (EBRD) and IFC have a strategy, guidance materials, or priorities, to support agribusiness private sector operations. Recognizing the risks inherent in agribusiness, these institutions also provide extensive TA and advisory services. EBRD's support ranges from capacity building to facilitating dialogue between the public and private sectors. ADB does not provide such comprehensive support.

93. **Strategy 2030, approved in July 2018, includes promoting rural development and food security as one of seven priority areas.**⁶⁴ The strategy recognizes the need for more integrated solutions and greater differentiation and tailoring of ADB support to meet country needs. The rural development and food security priority area highlights three aspects (agricultural productivity, market connectivity and value chain linkages, and food safety), of the Operational Plan for Agriculture and Natural Resources, 2015. The integrated nature of the strategy also includes complementary priorities such as poverty alleviation, gender, natural resources, and the water–food–energy security nexus. New operational plans will be developed for the seven priority areas. While the inclusion of rural development and food security as a priority area is positive, Strategy 2030's action areas under this priority area are not yet fully articulated as they are limited to the ANRRD portfolio. Rural development and food security actions require input from other sectors, including transport, energy, and finance. For example, the finance sector can contribute to rural development and food security by incentivizing investments in rural infrastructure, agriculture and livestock development, promoting access to diverse financial services including income-generating and financial risk protection solutions, value chain financing and use of high-level technology with focus on smallholder farmers, women entrepreneurs and youth.

C. Agriculture, Food Security, and Natural Resources Operational Plans

94. **In 2009, ADB replaced its guiding ANRRD sector policies on forestry, fisheries, and research by an Operational Plan for Sustainable Food Security in Asia and the Pacific.** The 2009 plan sought to integrate all aspects related to agriculture into a single document. It also recognized that achieving sustainable food security required contributions from other sectors and that multisectoral responses were needed. It stressed that much of ADB's support for improved food security would not come from the ANRRD sector. In doing so, it limited the depth and specificity that was needed to guide future ANRRD work and that had been found in previous ANRRD-related policies (e.g., those on fisheries, forestry, and agricultural research). Furthermore, an operational plan does not have the same status as a policy, which is approved by the Board of Directors, implying that it has gone through a more thorough review process before approval and has greater institutional standing, making it more likely to be implemented seriously.

95. **The 2009 operational plan was important because it explicitly acknowledged that sustainable food security was a "crucial element" of Strategy 2020.** Even though agriculture had not been a priority under Strategy 2020, the 2009 plan highlighted the importance of ADB's support for the expansion of

⁶⁴ ADB. 2018. *Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific*. Manila. Strategy 2030 is ADB's long-term corporate strategy to 2030. It sets the course for ADB's efforts to respond effectively to the region's changing needs. Under the Strategy 2030, ADB's support will focus on seven operational priorities: (i) addressing remaining poverty and reducing inequalities; (ii) accelerating progress in gender equality; (iii) tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability; (iv) making cities more livable; (v) promoting rural development and food security; (vi) strengthening governance and institutional capacity; and (vii) fostering regional cooperation and integration.

rural infrastructure (transport, energy, and irrigation), finance sector activities (especially for SME development and micro credit), and regional integration (trade facilitation). These contributed to food security as well as to economic growth. This was largely a repositioning or retrofitting of the existing Strategy 2020 priorities in terms of their potential contribution to food security. However, the 2009 plan also envisioned more explicit support for food security and increased partnerships to enable ADB to engage with farmers, businesses, and other actors who directly participated in the agricultural value and supply chains necessary to achieve improved food security.

96. **The 2009 plan identified five types of actions to be implemented by ADB to help the region address the food crisis.** These were: (i) adoption of a multisector approach to address the key constraints on food security, (ii) expansion and deepening of partnerships on sustainable food security, (iii) continuing to align ADB's operations in agriculture and rural development with greater focus and selectivity, (iv) increasing support for agricultural and natural resources research, and (v) investing in collaborative learning and knowledge development for sustainable food security. While these are important, the plan did not provide mechanisms for these actions or clarity on how ADB should pursue partnerships or the research agenda. The plan's multisectoral approach was idealistic and proved difficult to implement as much of ADB's support for the 2009 operational plan was outside the ANRRD sector.

97. **The \$2 billion annual approval target for food security was a useful way of focusing attention on the need for increased investments but, overall, the 2009 plan lacked the clarity needed to guide implementation.** In practice, the approval target was largely met by contributions from non-agriculture sectors. The 2009 plan did not provide a clear strategy for engaging in ANRRD per se, nor did it distinguish between indirect support (e.g., enabling infrastructure) and direct support (e.g., support for farmers). The operational plan did not sufficiently recognize the difficulties of implementing multisector approaches and working in partnerships. Internally, multisector approaches depend on strong coordination with non-ANRRD divisions. Establishing effective partnerships can be resource-intensive and need to be based at the country level. The target of \$2 billion a year was significant compared with the resources available to most partners working in agriculture, making the assumption that others would consistently be able to take on the more difficult task of working with farmers while ADB provided indirect infrastructure support unrealistic.

98. **The 2009 plan included a strategic results framework, which had no baselines or targets and an action plan that was not rigorously implemented and reported on.** The 2009 plan identified as its intended impact "improved availability of, and access to, adequate and safe food for Asia's poor and vulnerable in a sustainable manner" and had as its expected outcome "inclusive food and agriculture value chains." However, this framework contained no impact or outcome indicators. It identified four anticipated outputs: (i) improved productivity, (ii) enhanced connectivity, (iii) improved resilience; and (iv) enhanced knowledge and technology. Each of these areas had at least two output indicators, but no baselines and targets were identified and thus it was not clear how their attainment would be monitored and reported on. The action plan identified a number of activities (e.g., monitoring results, partnerships, research, and knowledge) needed for the 2009 operational plan to be delivered. For knowledge, a regional investment forum on food security was held at ADB headquarters in 2010. Under partnerships, ADB, FAO, and IFAD signed the Asia-Pacific Regional Food Security Partnership Framework. IFAD and ADB signed two additional agreements in 2013 and 2014: a memorandum of understanding in September 2013 replacing the 1978 Cooperation Agreement; and, in December 2014, a framework cofinancing agreement for 2014–2017. Under research, the 10-year strategic action plan for agricultural research was not developed.

99. **In recognition of and in response to some of these limitations, in 2015 ADB introduced an Operational Plan for Agriculture and Natural Resources: Promoting Sustainable Food Security in Asia and the Pacific in 2015–2020 (footnote 7).** Importantly, while this still recognized the need for a multisectoral approach, it was much more focused on ANRRD contributions. The plan also provided updated guidance on how ADB could meet the Strategy 2020 Midterm Review's recommendation that ADB should pay

more attention to food security and agricultural productivity. It focused on four priority areas: (i) increasing the productivity of food crops and reducing pre- and post-harvest losses; (ii) improving market connectivity and value chain linkages; (iii) enhancing food safety, quality, and nutrition; and (iv) enhancing the management and climate resilience of natural resources. It noted that these areas, “including the key elements of the food value chain (production, processing, distribution, and consumption), are highly interconnected, requiring innovative and integrated multisector approaches and interventions to address food security in DMCs more directly.” A primary focus of the 2015 plan was the contribution made to food security by the agriculture and natural resources sector, and its desired outcome was the “improved focus and quality of ADB ANR operations in meeting DMCs’ needs, resulting in safe, nutritious, and affordable food for all.” Although improving the quality of ANR operations is important, the plan would have provided more useful guidance for ADB if the desired outcome had been related to objectives for ANRRD.

100. **The 2015–2020 Operational Plan clarified several aspects of the previous plan.** The plan continued to take a multisector approach, focusing on increasing positive links between agriculture and natural resources and other sectors (including transport, energy, water, environment, finance, education, and health) to ensure that interventions “more systematically address the key features of food security.” However, the 2015 plan was more explicit than its predecessor as it focused much more on the work of the ANRRD divisions. The importance of other sectors was acknowledged, but the four priority areas largely covered what could be directly achieved by the ANRRD divisions.

101. **In aligning itself more closely with ADB’s portfolio, the 2015 plan’s proposed interventions were often not commensurate with the identified challenges.** For example, under key challenges, the plan highlighted food loss and waste as serious issues, noting the importance of pre and post-harvest facilities and services as well as policy issues. This assessment is in line with international understanding.⁶⁵ However, the plan’s priority intervention areas for ADB limited ADB’s proposed contribution to reducing food losses primarily to flood control as this was an existing area of work. While flood control is important, it is not the main intervention needed. ADB mentioned that support for postharvest facilities and engagement with the private sector was much needed but then downplayed ADB’s role in these areas in favor of flood protection. Likewise, the key challenges section noted the role of structural transformation and the implications of urbanization and changing diets and food demands, which implied there was a need to support value chain development. However, the direction section stated only that ADB would support value chains in terms of connectivity and market links. While these are important, they are only part of value chain development.

102. **The 2015 plan discussed the need for ADB to work across departments, particularly for regional departments to work with PSOD, and the significance of public–private partnerships.** It stressed the need for ADB to “expand its regional cooperation and integration initiatives in the ANR sector and increase partnerships in financing, innovation, implementation, monitoring and evaluation, and policy and knowledge solutions.” But how these objectives were to be achieved was not clear.

103. **The 2015 plan proposed two initiatives to address other limitations.** An Innovation and Knowledge Facility for Climate-Smart Agriculture and Food Security was suggested to “increase donor harmonization, realize efficiency gains and joint impact, and improve transparency in the preparation and implementation of agriculture and food security research, application, and dissemination activities.” The plan also asserted that ADB would “refine ANR staffing and skill mix” to support its implementation. However, there does not appear to have been any progress on these initiatives to date.

⁶⁵ FAO. *Fact Sheet: Global Initiative on Food Loss and Waste Reduction*. In developing countries food waste and losses occur mainly at early stages of the food value chain and can be traced back to financial, managerial and technical constraints in harvesting techniques as well as to storage and cooling facilities. In medium- and high-income countries food is wasted and lost mainly at later stages in the supply chain.

104. **The 2015 plan included a results framework with a number of ANRRD results indicators.**⁶⁶ However, in all but one case—food safety standards formulated, published, and legislated (for which the 2020 target is “all DMCs”), no outcome target was indicated and the pertinent column in the matrix stated only that ADB would “monitor” results or that they should be “above baseline.” In most cases in the baseline column, only “current level (2014)” was stated and no figure was provided. It was therefore unclear how the plan would be implemented or its results assessed.

105. **A limitation of both the 2009 and 2015 operational plans was their lack of detail to support and guide implementation.** Unlike comparator organizations which provided additional guidance through toolkits (IFAD), guidance notes (World Bank), or individual frameworks for agriculture and food security (Inter-American Development Bank), ADB has not provided more detailed strategic guidance documents. In other parts of its work, ADB has provided such guidance (e.g., the Water Operational Plan has developed a subsector guidance note for irrigation that provides specific directions).⁶⁷ In addition, the plans raise important issues such as regional public goods, technology and innovation, and partnerships, but provide little guidance on how to address them.

106. **As ANRRD is by its nature is multisectoral, several other ADB operational plans also provide guidance for ANRRD investments.** These include the Environment Operational Directions, 2013–2020 (which covered sustainable infrastructure, natural capital, and climate change),⁶⁸ Climate Change Operational Framework, 2017–2030 (which focused on adaptation but also recognized the role of ANR in mitigation),⁶⁹ Financial Sector Operational Plan (which included credit lines for rural development and SMEs and agricultural projects with disaster insurance),⁷⁰ and the Water Operational Plan, 2011–2020 (which stressed water use efficiency—“more crop per drop”—and the water–food–energy security nexus).⁷¹

D. Country Partnership Strategies

107. **About half of the 61 CPSs approved between 2005 and 2017 paid explicit attention to ANRRD.** The evaluation reviewed 61 CPSs for 35 countries against the priorities set out in the 2009 and 2015 operational plans. Thirteen countries⁷² consistently highlighted ANRRD as a priority, while seven⁷³ had one CPS that supported ANRRD during the evaluation period. In the majority of these cases, it was the most recent CPS that included ANRRD. For example, the Tajikistan CPS, 2010–2014 included explicit statements that ADB would not support ANR due to the activities of other multilateral agencies. By contrast, the latest CPS, in signaling a return to the sector, mentioned that ADB had missed opportunities for development related to ANR.⁷⁴ Figure 23 provides a summary of the intended ANRRD focus areas in

⁶⁶ (i) Country-level domestic food price index; (ii) production of staple crops (rice and wheat); (iii) direct beneficiaries supported by agricultural productivity investments (number and percent female); (iv) households involved in commercial agricultural production and marketing; (v) households with reduced flood risks; (vi) households with improved rural market access; (vii) end borrowers of ANR microfinance loans or small and medium-sized enterprise loans reached; (viii) food safety standards formulated, published, and legislated; (ix) land improved through irrigation, drainage, and/or flood management; (x) rural roads built or upgraded.

⁶⁷ ADB. 2017. *Irrigation Subsector Guidance Note*. Manila.

⁶⁸ ADB. 2013. *Environmental Operational Directions, 2013–2020*. Manila.

⁶⁹ ADB. 2017. *Climate Change Operational Framework 2017–2030: Enhanced Actions for Low Greenhouse Gas and Climate-Resilient Development*. Manila.

⁷⁰ ADB. 2011. *Financial Sector Operational Plan*. Manila.

⁷¹ ADB. 2011. *Water Operational Plan for 2011–2020*. Manila.

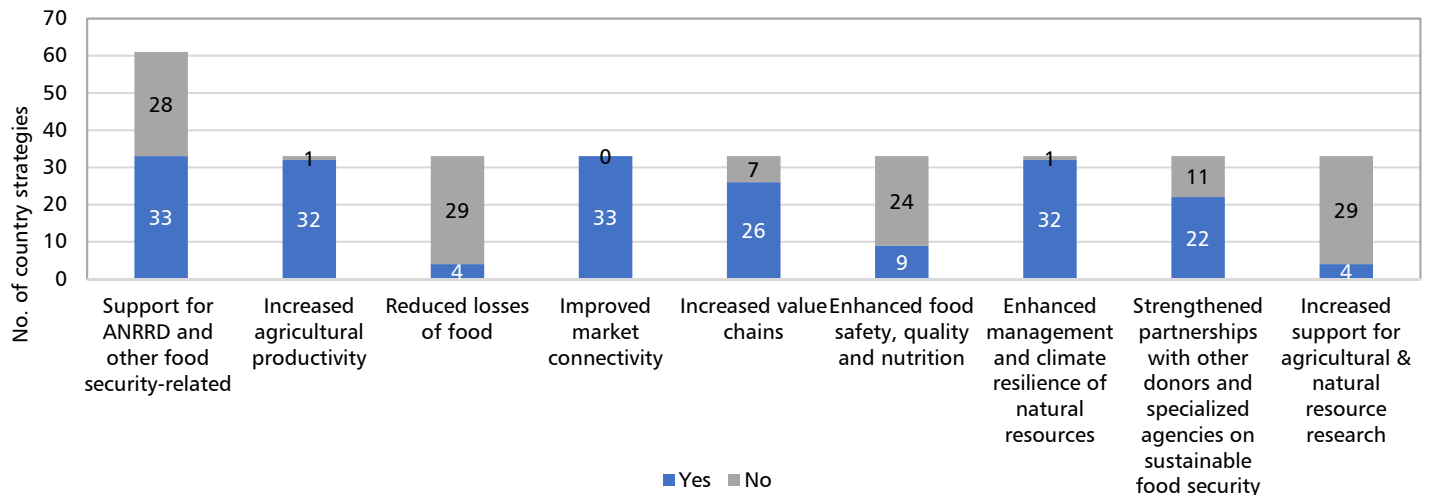
⁷² These include Afghanistan, Bangladesh, Cambodia, People's Republic of China, India, Indonesia, Lao People's Democratic Republic, Myanmar, Nepal, Pakistan, Philippines, Uzbekistan, and Viet Nam.

⁷³ These include Armenia, Azerbaijan, Kazakhstan, Kyrgyz Republic, Mongolia, Sri Lanka, and Tajikistan.

⁷⁴ ADB. 2016. *Country Partnership Strategy: Tajikistan, 2016–2020*. Manila.

CPS support based on select ANRRD operational plans' priorities. The CPSs are assessed against the operational plan priorities⁷⁵ as these are corporate objectives of ADB.

Figure 23: Focus of ADB Country Strategies in Line With the 2009 and 2015 Agriculture, Natural Resources, and Rural Development Operational Plans



ADB = Asian Development Bank; ANRRD = agriculture, natural resources, and rural development.
Source: ADB (Independent Evaluation Department).

108. **All but one of the CPSs that covered ANRRD included increasing agricultural productivity, primarily through water-related infrastructure.** Areas of intervention for productivity enhancement focused on the development or delivery of infrastructure, particularly that related to irrigation and water resources, primarily through rehabilitation, expansion or modernization of irrigation facilities. More recent CPSs (e.g., those for India, Pakistan, Tajikistan, and Uzbekistan) touched on the role of water use management in increasing agriculture productivity. This reflected the increasing importance of water efficiency and productivity in agriculture, particularly in regions experiencing increasing water stress and resource scarcity. By contrast, agricultural policy received little attention in CPSs.

109. **All CPSs included a focus on improved market connectivity as rural infrastructure and improved access was seen as an area where ADB could make a key contribution.** The emphasis was mainly on rural roads and related infrastructure to lower transportation costs and enhance access to economic opportunities and services for rural communities. Activities typically included the upgrading, rehabilitation or expansion of rural road networks. More recent CPSs explicitly recognized the need to ensure that infrastructure was inclusive, benefiting the poor and disadvantaged. There were efforts to expand infrastructure support in railways, water transport, and storage and drying facilities related to agriculture development (e.g., in the PRC, Myanmar, Pakistan, and Philippines).

110. Recent CPSs are also increasingly addressing regional issues. Most often covered are regional road networks in areas where regional cooperation was a strong impetus for increased trade, as in Central Asia Regional Economic Cooperation countries and the Greater Mekong Subregion (GMS). The GMS is by far the most advanced subregion in terms of cooperation based on long standing ADB support and the regional countries' willingness to engage. Key activities include the GMS Core Agriculture Support Program⁷⁶ which have resulted in key outcomes such as the development of Strategy for Promoting Safe

⁷⁵ These are primarily the 2015 operational plan priorities with the addition of partnerships and research, which had greater prominence in the 2009 operational plan but remained consistent with the 2015 operational plan.

⁷⁶ ADB. 2012. *Core Agriculture Support Program Phase II, 2012–2015*. Manila: GMS Working Group on Agriculture.

and Environment-Friendly Agro-based Value Chains in the GMS and Siem Reap Action Plan, 2018–2022.⁷⁷ While these regional priorities are recognized in the CPSs of GMS countries more can be done to integrate this work with the lending programs. Political dimensions are much different in South and Central Asia which hamper trade and transboundary water and natural resource management issues. Despite these challenges, CPSs particularly Central Asia Regional Economic Cooperation address cooperation.

111. Natural resources, environment, and climate were consistently discussed in CPSs but were often linked to the provided infrastructure rather than being objectives on their own. Most CPSs included a reference to environmentally sustainable growth, a strategic pillar of Strategy 2020, and recognized the links between agriculture and environment. In terms of improvements, most specific references were about improving water use efficiency and/or availability, with some emphasis on conservation, protection, and management. There were fewer references to or proposed support for forestry, biodiversity, natural capital, and marine and coastal resources management. Innovative measures such as eco-compensation and other market-based instruments to support environmental protection and conservation and on pollution control were identified in some recent CPSs, e.g., the PRC CPS, 2016–2020. Climate change aspects such as resilience and natural disaster-related considerations were often interwoven with support for rural infrastructure, e.g., flood protection and climate-resilient infrastructure. Most of the emphasis was on adaptation rather than on agriculture’s contribution to mitigation (i.e., reducing agriculture and livestock-related greenhouse gas emissions).

112. The importance of value chains and private sector development was increasingly recognized in CPSs but in little depth and other priorities such as food loss and nutrition were seldom discussed. Value chains were frequently referred to in CPSs but this was often in general terms related to supporting agriculture development and modernization. Earlier CPSs discussed support for input supply, agribusiness development, agriculture commercialization, and agricultural marketing. CPSs for Afghanistan, Bangladesh, Cambodia, Kazakhstan, Kyrgyz Republic, and Myanmar provided more detail and indicated support for private sector development and expanding agricultural commercialization (including for exports), and diversification, but without reference to instruments or approaches for support. There was little distinction between or discussion about sovereign private sector development support and private sector agribusiness operations. There was even less discussion of aspects of the value chain related to food safety, food losses, and nutrition. Food safety and quality was discussed in several countries in the context of regional cooperation and expansion of agriculture, food exports, and trade (Lao People’s Democratic Republic, Myanmar, and Viet Nam). Only two CPSs discussed nutrition, even though malnutrition is a serious concern in a number of countries (Box 2).

113. Two-thirds of CPSs recognized the importance of partnerships for achieving results, given the diversity and depth of challenges. These CPSs were often realistic about ADB’s comparative advantage (e.g., its strength in infrastructure) and noted that other partners engaged in agriculture had more interest or expertise in working on-farm with beneficiaries. However, the CPSs lacked details on how partnerships would be pursued and synergies achieved. In some CPSs there were more specific attempts to fill gaps or pursue complementary activities through cofinancing. However, there were few examples of CPSs that recognized or pursued knowledge partnerships.

114. Four of the CPSs covered agricultural research, although little emphasis was given to linking this to extension or product development (e.g., new seed varieties). These CPSs were those for Cambodia, 2014–2018; Nepal, 2010–2012; Kyrgyz Republic, 2007–2010; and Pakistan, 2015–2019. The most detailed discussions were in the Cambodia and Nepal CPSs, which argued that research should focus on agriculture productivity, diversification, and related areas in environment and climate change adaptation or mitigation (e.g., environmentally friendly inputs and practices and drought-tolerant varieties).

⁷⁷ ADB. 2018. *Strategy for Promoting Safe and Environment-Friendly Agro-based Value Chains in the Greater Mekong Subregion and Siem Reap Action Plan, 2018–2022*. Manila.

115. **Three of the case study countries consistently addressed agriculture in their CPSs.** Over the evaluation period, the CPSs for the Bangladesh, Cambodia and the PRC consistently focused on agriculture and food security issues. In contrast, the CPS, 2010–2014 for Tajikistan explicitly excluded agriculture, despite recognizing its significance for livelihoods, poverty reduction, and food security, priority issues for the country. However, this position was reversed in the CPS, 2016–2020.

116. **The CPSs for the Pacific provided little explicit direction for supporting agriculture, natural resources and rural development.**⁷⁸ ADB’s Pacific Approach covered the environment, climate change, tourism, agriculture, and fisheries in 11 Pacific island countries but did not provide specific directions.⁷⁹ The PNG CPS, 2016–2020⁸⁰ was focused on transport and energy and assumed that agriculture would benefit indirectly from gains in these areas. The evaluation mission to PNG and Fiji found that the ANRRD sector in the Pacific presented opportunities (e.g., in coffee) that could be supported by ADB (Appendix 2).

117. **Countries with substantial agricultural portfolios, such as the case study countries, tailored their programs to match country needs, resulting in greater differentiation and specification.** The PRC CPSs placed significant emphasis on addressing environmental degradation and threats. In Bangladesh, ADB focused on improving the rural livelihoods of poor farmers, including vulnerable groups, by linking infrastructure with livelihood and agribusiness opportunities. The most recent CPS for Bangladesh also recognized the importance of institutions and trade. Cambodia CPSs recognized the importance of agricultural policy, value chains, and commercialization to support rural–urban development. The Tajikistan CPS, 2016–2020, which signaled ADB’s reengagement with agriculture, contained targets for food security and climate resilience.

E. Summary

118. **ADB’s corporate guidance in relation to agriculture and food security was less than relevant although it has improved since the 2007–2008 food price crisis.** ANRRD was given a central position in ADB’s strategies into the early 2000s. However, as Asia grew and urbanized, ADB support evolved towards supporting the broader enabling environment and inclusive growth. As a result, ANRRD was de-emphasized. In hindsight, ADB’s move out of ANRRD was short sighted. Since the 2007–2008 food price crisis, ADB strategies have continued to focus on the broader growth agenda but have increasingly recognized that agriculture and natural resource management remain important for the region and that ANRRD has a role to play in achieving inclusive growth, environmental sustainability, and adaption to climate change in rural areas.

119. **ADB operational guidance documents between 2009 and 2017 became more focused and consistent with each other, but the ANRRD-related operational plans lacked the specificity of earlier subsector policies.** The 2015 operational plan moved away from food security as an integrated multisectoral goal, focusing more on contributions from the ANRRD sector, and emphasizing elements such as food safety, quality, and nutrition. This plan also mentioned the role of the private sector and PSOD but was less clear on how the sovereign and nonsovereign sides of ADB could work together. Related to this, PSOD has established an agribusiness investment unit, which has developed a strategy as to how it will develop this business line, but it has not yet published this strategy. The 2015 operational plan recognized the importance of interrelationships with other plans but argued that greater linkages and joint targets would be useful. In addition, part of ADB’s support for ANRRD comes indirectly to underserved farmers and agriculture-based SMEs through financial intermediaries funded by both sovereign and nonsovereign lending, although little is known about how extensive this is or the extent

⁷⁸ There are two sets of ADB strategies for the Pacific island countries: (i) Pacific Approach for 11 small island countries—Cook Islands, Kiribati, Republic of Marshall Islands, Federated States of Micronesia, Nauru, Palau, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu—that have similar binding constraints, and (ii) CPSs for PNG, Fiji, and Timor-Leste.

⁷⁹ ADB. 2017. *Pacific Approach, 2016–2020*. Manila.

⁸⁰ ADB. 2015. *Country Partnership Strategy: Papua New Guinea, 2016–2020*. Manila.

to which it is coordinated, if at all, with ADB's direct lending to DMCs for agricultural and rural development.

120. **The \$2 billion annual approval target for food security was helpful in signifying the importance of the issue to ADB.** However, there are a number of limitations with the definition and measurements associated with the target. Non-ANRRD support contributing to food security does not seem to be systematically captured. Likewise, some ANRRD investments, e.g., rural water supply and sanitation, do not directly support food security. The results frameworks of the operational plans generally lack baselines and targets.

121. **CPSs systematically address the key thrusts of the operational plans related to infrastructure, but have been slower to identify specific sector challenges or to address other areas important for value chain development.** The primary entry point for ADB's agricultural work appears to be its support for enhanced rural connectivity (e.g., roads) and certain aspects of agricultural productivity (e.g., expanded or improved water-related infrastructure). More recently, there has been an increase in the number of CPSs recognizing the importance of value chains and responding to country-specific challenges. For example, the Mongolia CPS, 2017–2020 highlighted the harsh environment and the potential for certain commodities such as livestock and certain vegetables. It included plans to pilot test approaches to support enterprises in certain value chains and to address issues such as food safety. However, generally the CPSs were slow to include other complementary but necessary activities, (e.g., institutional development, food safety and agricultural research) that are needed for further agricultural growth and value addition. Likewise, the CPSs generally focused on areas of project investment rather than on the role of nonlending activities such as policy dialogue and partnerships.

4



PERFORMANCE AND RESULTS

Highlights

Success rates of agriculture and food security projects were less than 60% for the first 5 years of the evaluation period and over 75% for the last 4 years of the period, averaging 64.5%, similar to the ADB average (64.9%). Sustainability was the lowest rated criteria.

Projects in the flood protection, water- and land-based natural resources management subsectors performed best, while projects supporting agricultural production and irrigation and drainage performed less well.

ADB's results for increased agriculture and water productivity have been significant in the volume of resources but modest in results. Benefits take time to fully accrue and appear greatest when delivery of water is combined with on-farm extension support.

ADB contributed to varying degrees to key links in agricultural value chains, primarily to input supply and production and mainly through infrastructure.

ANRRD projects have promoted inclusive growth and supported smallholder development.

ADB projects have contributed positively to the resilience and enhancement of natural resources, both for their own intrinsic value and for the ecosystems services they provide to support agriculture. Climate adaptation deserves greater attention given its potential contribution to wider resilience.

A. Overview

122. **This chapter presents the performance of the ANRRD sector over the evaluation period.** The 110 IED project validations and project performance evaluations completed from 2005 to 2017 form the basis for the evaluation. The evaluation covers projects approved between 1991 and 2008 and completed between 2000 and 2015. It looks at overall performance and the underpinning criteria (relevance, effectiveness, efficiency, and sustainability). It also compares ratings across subsectors and regions. Where there is sufficient evaluative evidence, the evaluation attempts to understand the determinants of good or poor performance.

123. **This chapter assesses ADB's contribution to results.** Results are presented as the contribution of ADB investments to key outcomes identified in the evaluation's theory of change (i) increased agriculture and water productivity; (ii) integrated value chains; (iii) improved smallholder livelihoods (including gender equity); and (iv) enhanced sustainability and resilience of food systems and natural resources. This is followed by an assessment of crosscutting topics, including safeguards and innovation. The results assessment is supported by an aggregated analysis of the outcomes achieved as identified in the IED reports and findings from the country case studies (Bangladesh, Cambodia, the PRC, and Tajikistan).

B. Performance

1. Performance Ratings

124. **ANRRD projects have a success rate that is at par with the ADB-wide average** (Table 3). A review of project completion report validation reports (PVRs) and project performance evaluation reports (PPERs) completed between 2005 and 2017 indicated that ANRRD projects' success rate (64.5%) was just below the ADB average (64.9%). There were no highly successful projects and, at 10%, the proportion of unsuccessful projects was higher than the ADB average of 6%. Appendix 3 lists the PVRs and PPERs.

Table 3: ADB Project Success Rates by Sector, 2005–2017

Sector	Unsuccessful	Less than Successful	Successful	Highly Successful	Total	Success Rate (%)
Agriculture, natural resources, and rural development	11	28	71	0	110	64.5
Education	4	16	42	2	64	68.8
Energy	1	14	34	5	54	72.2
Finance	5	28	29	2	64	48.4
Health	4	6	24	0	34	70.6
Industry and trade	3	6	13	0	22	59.1
Information and communication technology	0	0	2	0	2	100.0
Public sector management	4	24	43	2	73	61.6
Transport	4	34	91	8	137	72.3
Water and other urban infrastructure and services	3	24	35	0	62	56.5
Not classified	1	4	11	0	16	68.8
Total	40	184	395	19	638	64.9

ADB = Asian Development Bank.

Sources: Asian Development Bank (Independent Evaluation Department). Project completion report validation reports and project performance evaluation reports circulated in 2005–2017.

125. **ADB’s support for sustainable agriculture and food security improved from a 59% success rate in 2005–2009 to 79% in 2014–2017.** Of the 34 project completion report validations (PVRs) circulated in 2005–2009 for the ANRRD sector, 20 (59%) assessed the projects successful. This performance was maintained over the next period, 2010–2013, with 28 successful projects out of 47 validations (60%). For the last period, 2014–2017, the average success rate improved to almost 80%, with 23 out of 29 ANRRD validations (Table 4). The trend in improving performance was first noted in the IED 2012 Annual Evaluation Review,⁸¹ which highlighted that performance improvements were based on a better understanding of the sector and lessons learned related to poor performing policy loans and subsectors as well as a greater emphasis on complimentary activities and “connecting the dot” to ensure better outcomes and sustainability.

Table 4: Success Rates of Agriculture, Natural Resources, and Rural Development Projects by Period, 2005–2017

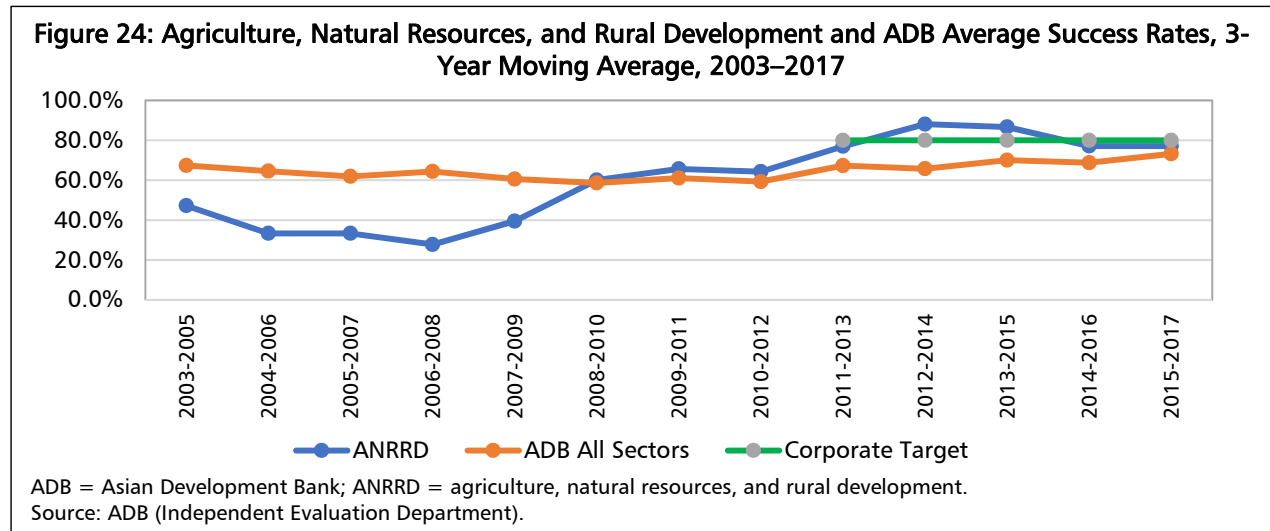
Period	Unsuccessful	Less than Successful	Successful	Total	Success Rate (%)
2005–2009	6	8	20	34	58.8
2010–2013	4	15	28	47	59.6
2014–2017	1	5	23	29	79.3
Total	11	28	71	110	64.5

Sources: Asian Development Bank (Independent Evaluation Department). Project completion report validation reports and project performance evaluation reports circulated in 2005–2017.

126. **Although annual success rates vary, the overall trend over the evaluation period for ANRRD is positive and improving.** In the beginning of the evaluation period (Figure 24), ANRRD project success rates were well below the ADB average. Since 2009, ANRRD performance has generally improved, although the number of projects evaluated annually has decreased since 2012. Since 2009, ANRRD success rates have been higher (13 successful projects of 19 ANRRD projects during the year) than ADB overall rates (33 out of 55). However, other sectors such as water and other urban infrastructure services were less successful (one out of five in 2009). This trend continued until 2014, raising the 3-year moving average. While the

⁸¹ 2012. IED. Annual Evaluation Review. Manila.

performance of ANRRD projects during 2015–2017 was below the level achieved in 2011–2015, it was only marginally below the corporate target, introduced in 2013, of 80% successful.

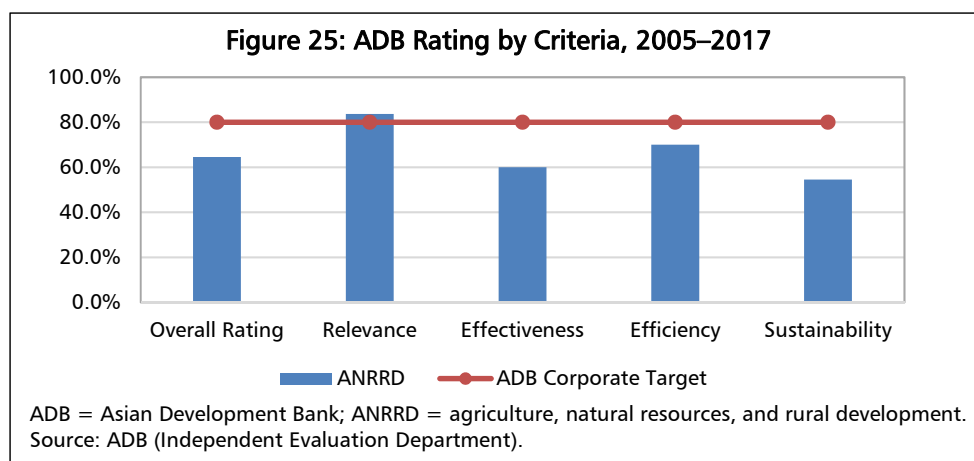


127. **ADB’s overall ANRRD project performance was similar, but marginally lower, to that of other MFIs.** All MFIs evaluate projects using similar criteria, although the way the World Bank⁸² arrives at an overall rating differs from both ADB and IFAD. The evaluation compared the ratings of ADB, IFAD and the World Bank in Asia in the agriculture sector for the 2005–2017 period. ADB’s overall success rate was marginally lower than that of the World Bank. IFAD’s ratings were higher than ADB’s. In terms of comparing ADB’s subsector performance with IFAD’s, the sustainability of irrigation projects was a problem for both institutions. At IFAD, the agricultural, credit and rural development subsector performance was stronger as the organization recognized early on the importance of linking farmers to markets, which led to better outcomes (effectiveness). IFAD’s better performance may be because it is a more specialized agency focused on agriculture and rural development. IFAD performs better than ADB in terms of effectiveness in achieving outcomes; yet ADB seems to be more efficient.⁸³ This difference appears to be because IFAD projects tend to work directly with project beneficiaries. By contrast, ADB’s support is largely for basic infrastructure, which can be implemented more easily but may be more difficult to sustain. IFAD’s better overall performance may also be because it has improved its quality at entry and supervision and implementation support.

128. **ADB’s ANRRD performance is positively driven by high relevance ratings but suffers from weaker effectiveness and sustainability ratings.** Projects were generally relevant because they were aligned with country priorities and contributed to poverty reduction. However, sustainability is a major concern, with only 55% of the ANRRD projects assessed likely sustainable. About 70% of projects were assessed efficient and 60% were assessed effective (Figure 25).

⁸² The World Bank uses a number of approaches that differ from ADB and IFAD. Its overall rating combines only relevance, effectiveness and efficiency, whereas IFAD and ADB also include sustainability in their overall rating. Further the World Bank uses a project outcome rating methodology that is different from those of the other MFIs, including ADB. The results obtained are therefore not directly comparable.

⁸³ The World Bank, IEG database does not disaggregate effectiveness and efficiency ratings from the overall rating but this information is available at the individual project level.



129. **ANRRD success rates varied across regions, with South Asia (81.5%), led by Nepal, and East Asia (80%) led by the PRC, having the highest rates.** Both regions outperformed the ADB-wide average, mirroring the overall success rates for all sectors in these two regions. Success rates of ANRRD projects in the Pacific and Central Asian regions were far lower than in other regions and in relation to the ADB average during the same period (Table 5).

Table 5: Project Success Rates by Region for Agriculture, Natural Resources, and Rural Development and for ADB All Sectors, 2005–2017

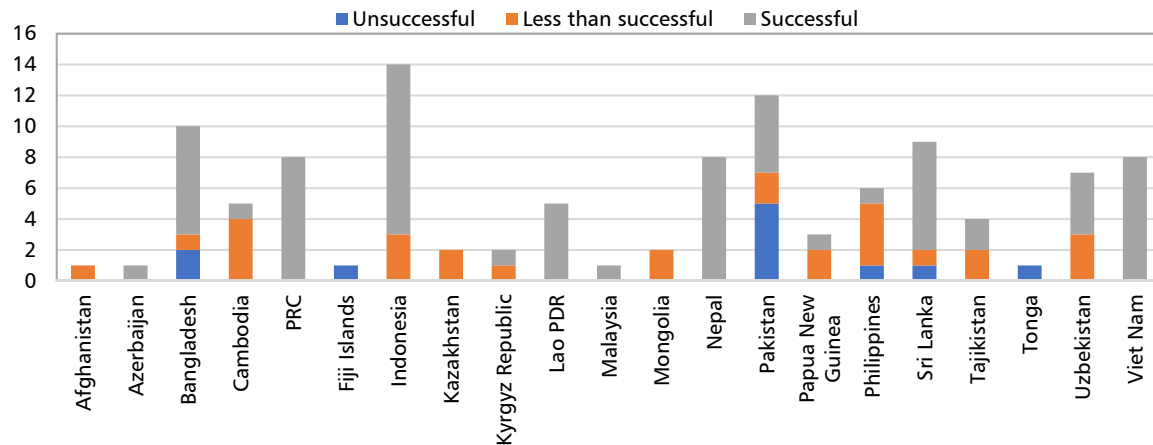
Region	Unsuccessful	Less than Successful	Successful	Total	Success Rate ANRRD (%)	Success Rate All Sectors (%)
Central and West Asia	5	11	13	29	44.8	48.9
East Asia	0	2	8	10	80.0	85.2
Pacific	2	2	1	5	20.0	41.2
South Asia	3	2	22	27	81.5	70.3
Southeast Asia	1	11	27	39	69.2	67.4
Total	11	28	71	110	64.5	64.9

ADB = Asian Development Bank; ANRRD = agriculture, natural resources, and rural development.
Source: ADB (Independent Evaluation Department).

130. **Performance varied significantly by country.** The evaluated ANRRD projects covered 21 countries (Figure 26). Of these, Indonesia had the largest number of successful projects (11 out of 14). Pakistan had the largest number of less than successful projects (7 out of 12).⁸⁴ The success rates in the PRC, Lao PDR, Nepal, and Viet Nam were all 100%. Azerbaijan and Malaysia also had 100% success rates, but they had only one project each. The Philippines had the lowest success rate with only one out of six projects judged successful (16.7%) followed by Cambodia with one out of five projects (20%). There were no evaluated projects in India during the period.

⁸⁴ The unsuccessful projects include (i) Agribusiness Development Project, (ii) Malakand Rural Development Project, (iii) Sindh Rural Development Project, (iv) National Drainage Sector Project, and (v) Agriculture Sector Program II.

Figure 26: Agriculture, Natural Resources, and Rural Development Project Performance by Country, 2005–2017



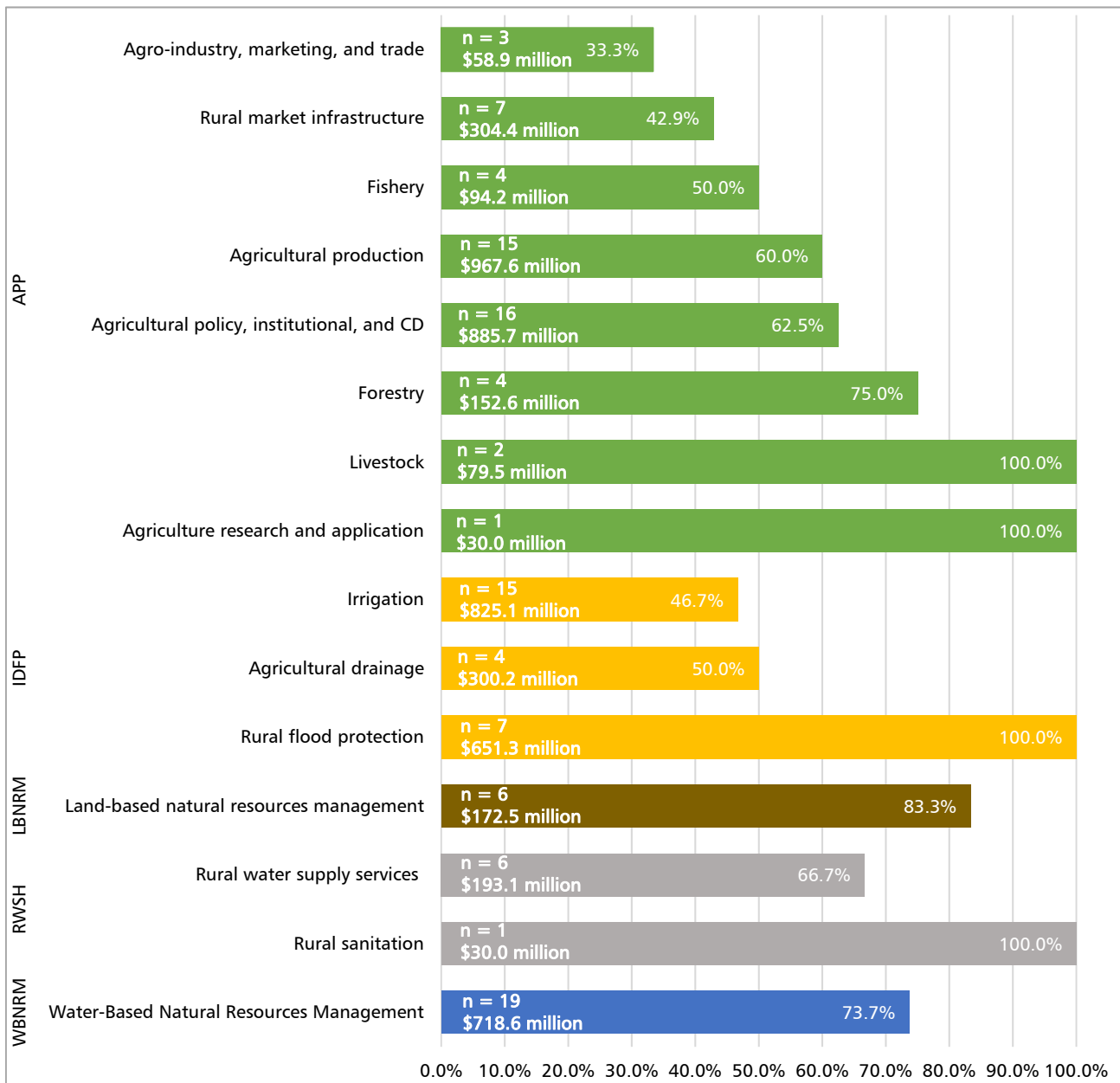
Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Asian Development Bank (Independent Evaluation Department).

131. Among the major ANRRD subsector groups, projects supporting land-based natural resources management (83% success rate, 6 projects) and water-based natural resources management projects (74% success rate, 19 projects), were the most successful. While the subsector classification indicates a focus on natural resource management, these projects were heavily involved with physical infrastructure. It should also be noted that the land-based natural resources management subsector has a relatively small number of projects compared with the other subsectors. Further, a number of the water-based natural resource projects supported urban water infrastructure and only indirectly benefited ANRRD, if at all (Figures 27 and 28).

132. ANRRD projects in the agriculture policy and production subsector group were less successful (60% success rate, 52 projects). Although some of the subsectors within the two groups were rated successful (agriculture research and application, livestock and rural flood protection), these were outweighed by the less successful performance of the other subsectors in the two groups. Although the agriculture policy and production subsector group had the largest number of successful projects (31), it also had the largest number of unsuccessful (7) as well as less than successful (14) projects. As for the seven unsuccessful agriculture policy and production projects, most of these were older policy loans. Some of them, e.g., the Agriculture Sector Program II in Pakistan, had overly ambitious designs and poor assumptions coupled with little complementary support.

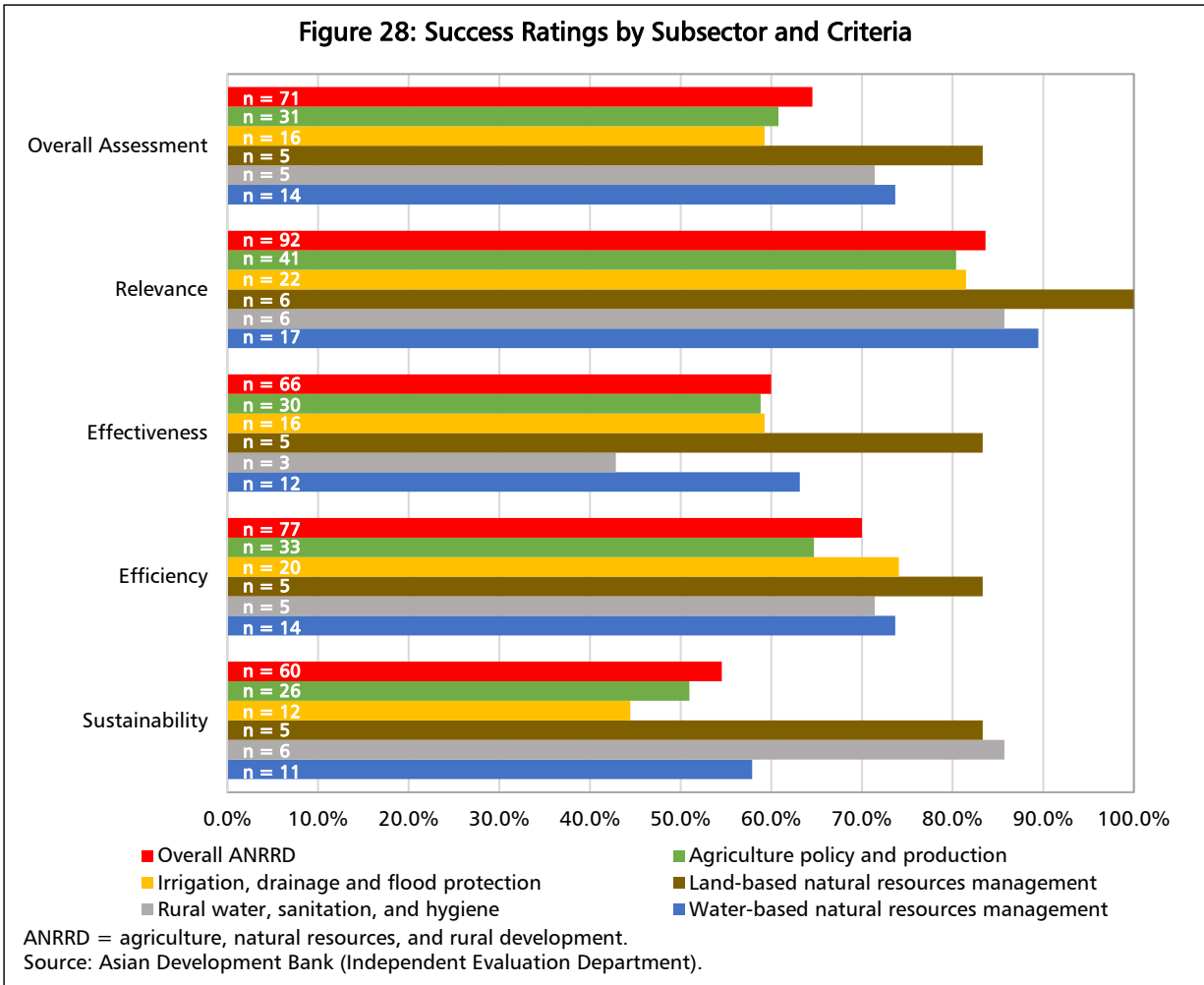
133. Although the irrigation, drainage, and flood protection subsector groups had a 62% success rate (26 projects), only nine out of the 19 validations in the irrigation and agricultural drainage subsectors had successful ratings. These projects performed poorly largely because of their low sustainability ratings. However, it should be noted that a number of agricultural production and water-based natural resource management projects also had irrigation components. These may perform better as their integration with other components and the smaller scale of the infrastructure built makes them more likely to be sustainable. A tentative conclusion is that the more purely irrigation projects lacked adequate agricultural, agricultural policy, and institutional content. The agricultural literature has shown that the supply of water alone, even if effective, is frequently insufficient to generate significant economic benefit when there are fundamental agricultural, agricultural policy, and/or institutional constraints.

Figure 27: Success Ratings by Subsector



APP = agriculture policy and production; CD = capacity development; IDFP = irrigation, drainage, and flood protection; LBNRM = land-based natural resources management; m = million; n = number of projects; RWSH = rural water, sanitation, and hygiene; WBNRM = water-based natural resources management.

Source: Asian Development Bank (Independent Evaluation Department).



134. **The rural water, sanitation and hygiene subsector group was small and had a success rate of 71%.** These projects were infrastructure-focused and limited to rural water supply and sanitation; they supported rural development but did not directly support agriculture and food security.

135. **Of the 17 subsectors within ANRRD, the rural flood protection projects were the most successful.** All seven projects validated under this subsector were assessed to have been successful. In addition, all projects in the rural sanitation, agricultural research and application, and livestock subsectors were also assessed successful although these involved only one or two projects for each subsector. However, projects in the agro-industry, marketing, and trade subsector were relatively poor performers with only one out three (33%) assessed successful, followed by rural market infrastructure (43%) and irrigation (47%). The low success rate of irrigation is significant, since 15 projects were rated in this subsector.

2. Factors that Influence Performance by Criteria

136. **The evaluation reports enabled the evaluation to assess the factors that explained good and poor performance.** The factors cited most frequently for each of the four evaluation criteria are noted below.

137. **Relevance.** The following factors were identified as important determinants for project relevance:

- (i) **Alignment with government and ADB strategies.** The Rural Enterprise Development Project in Uzbekistan⁸⁵ was rated not relevant, since it reflected intended outcomes that were not in line with country development priorities and needs, nor with the corresponding ADB country and corporate strategies. However, most projects were broadly aligned with government and ADB strategies.
- (ii) **Shortcomings in project design, especially overly complex objectives, overambitious aims, and inappropriate implementation arrangements.** The Fiji Alternative Livelihoods Development project⁸⁶ had to be cancelled due to shortcomings in project design, particularly the complexity of its objectives and inadequate implementation arrangements, which had not taken into account weak institutional capacities.
- (iii) **Technical design quality.** The irrigation component design in the Stung Chinit Irrigation and Rural Infrastructure Project in Cambodia⁸⁷ was based on flawed topographic analysis, which dramatically altered the costs associated with reservoir construction, and accordingly, the economic feasibility of the project. The social complexities of farming operations were likewise not taken into consideration (Box 4). Further, the design was complicated by on-going conflict, which restricted access to the field. By contrast, the forestry sector project in Viet Nam⁸⁸ was rated highly relevant with a design that paid close attention to the dual benefit of environmental protection and enhanced living standards for poor communities.
- (iv) **Approach to engaging beneficiaries.** A strong feature of the Viet Nam Agriculture Science and Technology Project⁸⁹ was the emphasis on stakeholder participation in research and extension design and enhancement of appropriate technology. However, the Southern Philippines Irrigation Sector Project⁹⁰ was affected by design and appraisal flaws; in particular insufficient beneficiary consultation led to the unrealistic setting of the farmers' equity contribution at 25% of the cost of developing and rehabilitating the facilities.
- (v) **Appropriate scope and analysis of capacities and constraints.** The Bangladesh Khulna-Jessore Drainage Rehabilitation Project⁹¹ covered only part of the affected river systems. A more holistic approach was needed. The project did not tackle the conflict of interest between participating fishing and farming groups. The Sundarbans Biodiversity Conservation Project⁹² incorrectly assumed that institutional weaknesses would be addressed during implementation through policy dialogue and the loan covenants. The potential impacts of the various incentives involved (e.g., income generation from forest resources) were insufficiently analyzed. The Indonesia Marine and Coastal Resources Management Project⁹³ was validated as relevant in its design approach to developing community groups that were self-sustaining and self-reliant, as well as in its approach to enhancing the national capacity for drafting laws and regulations.
- (vi) **Balancing construction and policy elements.** The Indonesia South Java Flood Control Sector Project⁹⁴ represented a good balance between these elements in its design for flood control and mitigation. In the case of the Philippines Second Irrigation Systems Improvement Project,⁹⁵ although the report and recommendation of the President acknowledged the need for the infrastructure development to be accompanied by

⁸⁵ IED. *Project Performance Evaluation Report: Rural Enterprise Development Project in Uzbekistan*. Manila: ADB.

⁸⁶ IED. 2012. *Validation Report: Alternative Livelihoods Development Project in Fiji*. Manila: ADB.

⁸⁷ IED. 2012. *Validation Report: Stung Chinit Irrigation and Rural Infrastructure Project in Cambodia*. Manila: ADB.

⁸⁸ IED. 2009. *Validation Report: Forestry Sector Project in Viet Nam*. Manila: ADB.

⁸⁹ IED. 2015. *Validation Report: Agriculture Science and Technology Project in Viet Nam*. Manila: ADB.

⁹⁰ IED. 2013. *Validation Report: Southern Philippines Irrigation Sector Project in the Philippines*. Manila: ADB.

⁹¹ IED. 2007. *Project Performance Evaluation Report: Khulna-Jessore Drainage Rehabilitation Project in Bangladesh*. Manila: ADB.

⁹² IED. 2008. *Validation Report: Sundarbans Biodiversity Conservation Project in Bangladesh*. Manila: ADB.

⁹³ IED. 2012. *Validation Report: Marine and Coastal Resources Management Project in Indonesia*. Manila: ADB.

⁹⁴ IED. 2008. *Validation Report: South Java Flood Control Sector Project in Indonesia*. Manila: ADB.

⁹⁵ IED. 2009. *Validation Report: Second Irrigation Systems Improvement Project in the Philippines*. Manila: ADB.

agricultural and institutional development, these activities were never adequately funded. The Integrated Pest Management for Smallholder Estate Crops Project in Indonesia⁹⁶ failed to include a component to address processing, marketing, and enterprise development, which constrained the ability of farmers to take advantage of market opportunities.

- (vii) **Design and monitoring framework quality.** In the Rural Income Generation Project⁹⁷ in Indonesia, the design and monitoring framework (DMF) indicated poverty eradication as the expected outcome but did not set any quantitative indicators (baselines or targets) for poverty incidence or for the expected future household income. The Viet Nam Agriculture Science and Technology Project also lacked measurable indicators in the original DMF, but this was remedied early during implementation and the project was rated highly relevant.

Box 4: Design Issues Hinder Implementation of an Irrigation Project

The validation of the project completion report of the Stung Chinit Irrigation and Rural Infrastructure Project in Cambodia and the evaluation team's discussions during the country visit to Cambodia highlighted various design problems with the project.^a The project preparation technical assistance missed important project realities such as the dilapidated state of existing irrigation infrastructure. The irrigation system was beyond repair and required complete reconstruction. The irrigation design was based on flawed topographic analysis, which dramatically altered the costs associated with reservoir construction and, accordingly, the feasibility of the project. Social issues also hampered implementation. As highlighted in the validation report, the farmers' social characteristics were not adequately considered. Organizing them so they could assume responsibility for irrigation system management was complex and proved to be more difficult than anticipated.

Three pertinent lessons emerge from this project. First, ADB needs to interact closely with the technical assistance-funded consultants preparing the project feasibility study and to supervise them strictly. Second, ADB needs to focus not only on engineering aspects, but also on social aspects such as group formation and arrangements for operation and maintenance of the system after project completion. Third, ADB needs to complement civil works with supporting agricultural services and access to production credit.

^a Independent Evaluation Department. 2012. *Validation Report: Stung Chinit Irrigation and Rural Infrastructure Project in Cambodia*. Manila: Asian Development Bank

Source: Asian Development Bank (Independent Evaluation Department).

138. **Efficiency.** The following factors were identified as important determinants of project efficiency:

- (i) **Extent to which the project's benefits exceeded project costs (cost-benefit analysis), indicate improved efficiency; however, the underlying assumptions are not always realistic.** The increasing EIRRs of ADB projects indicate that their efficiency has improved. However, there were limitations in the calculations of both the benefits and costs. In the Gender Equality and Empowerment of Women project in Nepal,⁹⁸ the PCR noted that not all of the benefits of empowerment were quantifiable and that therefore calculating the economic internal rates of return for the project may not have been meaningful. The Tajikistan Irrigation Rehabilitation Project⁹⁹ included unrealistic assumptions about operation and maintenance (O&M) costs in the EIRR calculation. Its estimates of the cost per hectare and per beneficiary were almost double those of a previous project, the Agriculture Rehabilitation Project.¹⁰⁰
- (ii) **Extent to which process efficiencies of project implementation effects the delivery of results.** As many ANRRD project components included activities that were difficult to quantify, proxy indicators of efficiency related to progress in project implementation are often used. Key proxy indicators for efficient implementation are time and use of financial

⁹⁶ IED. 2009. *Validation Report: Integrated Pest Management for Smallholder Estate Crops Project in Indonesia*. Manila: ADB.

⁹⁷ IED. 2012. *Validation Report: Rural Income Generation Project in Indonesia*. Manila.

⁹⁸ IED. 2016. *Validation Report: Gender Equality and Empowerment of Women Project in Nepal*. Manila: ADB.

⁹⁹ IED. 2013. *Validation Report: Irrigation Rehabilitation Project in Tajikistan*. Manila: ADB.

¹⁰⁰ IED. 2014. *Project Performance Evaluation Report: Agriculture Rehabilitation Project in Tajikistan*. Manila: ADB.

resources (disbursement rates, fund cancellations, and cost over-runs). The Smallholder Support Services Pilot Project in Papua New Guinea¹⁰¹ was not efficiently implemented. The project was delayed by 3 years, \$2 million of the loan was cancelled, and the counterpart funds from provincial governments were not fully provided.

139. **Effectiveness.** The following factors were identified as important determinants of project effectiveness:¹⁰²

- (i) **Realization of outputs as planned and according to specification.** The Tajikistan Irrigation Rehabilitation Project outcomes were constrained by the poor quality of the infrastructure built as part of the project.¹⁰³ In the Uzbekistan Amu Zang Irrigation Rehabilitation Project,¹⁰⁴ less than 30% of planned rehabilitation was completed due to poor contractor performance. The Nepal Second Irrigation Sector Project¹⁰⁵ successfully irrigated some 41,150 ha, with an increase in rice production of 48,000 tons. Productivity gains were less than the target but the rice price had doubled since project completion, increasing farmers' incomes.
- (ii) **Outputs being able to deliver outcomes.** The Pakistan Forestry Sector Project¹⁰⁶ is an example of a project that exceeded the original output targets but was nevertheless found to be less than effective because of the large variability in tree survival rates and funding shortfalls that affected the ongoing protection of many plantations. The Viet Nam Agriculture Science and Technology Project was rated highly effective as the envisaged outcome targets were largely achieved and some were exceeded. The Northwest Crop Diversification Project¹⁰⁷ provides a good example of an effective value chain (Box 5).
- (iii) **Ability to monitor and link project outputs to outcomes.** The Rural Development Project in Tajikistan¹⁰⁸ had three indicators: (a) project crop yield, (b) farmers reaching a commercial level of production, and (c) increases in the turnover of rural enterprises. Only crop yield was measured, with most targets being achieved; however, since the achievements of the two other indicators were not measured, it is unclear how the impact of increased farmer incomes could be sustained or even delivered.
- (iv) **Project ownership both by local institutions and beneficiaries.** The Bangladesh Khulna-Jessore Drainage Rehabilitation Project failed to develop a sense of community ownership. The project also failed to anticipate difficulties in fostering the active participation of relevant community institutions and did not adequately consider the beneficiaries' preference for non-structural solutions until very late in the implementation. The Indonesia Coral Reef Rehabilitation and Management Project Phase II¹⁰⁹ validation noted that materials contributed by the fishing households for village level infrastructures or facilities instilled ownership and volunteerism.

¹⁰¹ IED. 2013. *Project Performance Evaluation Report: Smallholder Support Services Pilot Project in Papua New Guinea*. Manila: ADB.

¹⁰² The effectiveness criterion measures the extent to which a project achieved the intended set of outcomes and outputs. Two frequently encountered shortfalls in agriculture projects are the failure to (i) improve the income and living conditions of poor households; and (ii) shortcomings in boosting the human resource and income-generating potential of women.

¹⁰³ IED. 2013. *Validation Report: Irrigation Rehabilitation Project in Tajikistan*. Manila: ADB.

¹⁰⁴ IED. 2015. *Validation Report: Amu Zang Irrigation Rehabilitation Project in Uzbekistan*. Manila: ADB.

¹⁰⁵ IED. 2008. *Validation Report: Second Irrigation Sector Project in Nepal*. Manila: ADB.

¹⁰⁶ IED. 2010. *Validation Report: Forestry Sector Project in Pakistan*. Manila: ADB.

¹⁰⁷ IED. 2013. *Validation Report: Northwest Crop Diversification Project in Bangladesh*. Manila: ADB.

¹⁰⁸ IED. 2016. *Validation Report: Rural Development Project in Tajikistan*. Manila: ADB.

¹⁰⁹ IED. 2014. *Validation Report: Coral Reef Rehabilitation and Management Project Phase II in Indonesia*. Manila: ADB.

Box 5: Moving Toward Effective Value Chains and the Importance of Expertise, Consultation, and Partnerships

The validation of the project completion report for the Northwest Crop Diversification Project in Bangladesh and the discussions during the evaluation mission to Bangladesh highlighted lessons for moving beyond a focus on agricultural production.^a At design, the poverty level in Bangladesh was at 46.5% and the agriculture sector was basically food crop-based, with rice cultivated in 76% of the planted areas. The objectives of the project were to raise farm incomes, alleviate poverty, and stimulate the region's economy by tapping the potential for high-value crop production.

The project accelerated the shift in cropping patterns from traditional mono-cropping to intercropping or combined planting of traditional crops with high-value crops in over 153,000 hectares (compared with 40,000 hectares estimated at appraisal). There was also a marked increase in the level of agro-processing activities, and farmers were able to learn improved postharvest handling practices, helping to reduce crop losses. At completion, 12,415 small farmers' groups (150% more than the appraisal target) involving 240,000 farmers had been formed and became eligible for supervised credit support.

Key lessons emerging from this project point to the importance of the following: (i) identification and deployment of qualified personnel, (ii) adequate consultations with local stakeholders in market site selection, (iii) a thorough needs assessment of project components, (iv) design of post-project monitoring and evaluation systems to ensure the sustainability of project impacts, and (v) careful selection of partner nongovernment organizations. Such projects are complex and require heavy investment in close implementation support: in mobilizing farmers and training them; in extension and marketing support; and in developing strong partnerships among the concerned government agencies, nongovernment organizations, and project beneficiaries. At the same time, such projects have a relatively low cost per participant, high economic returns, and good prospects for sustainability.

^a Independent Evaluation Department. 2013. *Validation Report: Northwest Crop Diversification Project in Bangladesh*. Manila: Asian Development Bank.

Source: Asian Development Bank (Independent Evaluation Department).

140. **Sustainability is the lowest rated criterion of ADB ANRRD projects.** The analysis in PCRs and evaluation documents of the factors determining the weak sustainability performance largely focused on the sustainability of the investment and did not take into account, for example, the medium- to long-term availability and reliability of the water resource (i.e., environmental sustainability) that underlies it. The wider basin-water availability upstream and downstream of the project area was rarely considered; this is an issue that warrants greater attention in the context of climate change and competing sectoral water use. The reasons provided in the PCRs and evaluation documents were similar, regardless of the subsector.

- (i) **Government funding.** For the Kazakhstan Water Resources Management and Land Improvement Project,¹¹⁰ the main issue was the lack of financial provision for long-term O&M at each level of the irrigation and drainage system.
- (ii) **Government capacity and commitment and/or government ownership of the project.** The Lao PDR Decentralized Irrigation Development and Management Project¹¹¹ was rated likely sustainable on the basis that the government was committed to the agriculture sector and would pay for O&M until the water user associations become financially independent.
- (iii) **Beneficiary funding and/or project profitability.** In the case of the Central Region Livelihood Improvement Project in Viet Nam,¹¹² the user groups established for water supply and irrigation required further support to enable them to maintain their systems and generate sufficient funds for O&M.
- (iv) **Beneficiary capacity, commitment, and ownership (i.e., farmer and fishermen organizations, water users' associations).** The validation of the Nepal Community Groundwater Irrigation Sector Project¹¹³ considered the project to be likely sustainable.

¹¹⁰IED. 2009. *Validation Report: Water Resources Management and Land Improvement Project in Kazakhstan*. Manila: ADB.

¹¹¹IED. 2013. *Validation Report: Decentralized Irrigation Development and Management Sector Project in the Lao People's Democratic Republic*. Manila: ADB.

¹¹²IED. 2012. *Validation Report: Central Region Livelihood Improvement Project in Viet Nam*. Manila: ADB.

¹¹³IED. 2009. *Validation Report: Community Groundwater Irrigation Sector Project in Nepal*. Manila: ADB.

However, the subsequent impact evaluation¹¹⁴ found that only 52% of water users' groups were fully or partly active at the time of the evaluation in 2012, which called into question the sustainability of the project.

- (v) **Quality of work.** In the case of the Pakistan National Drainage Sector Project,¹¹⁵ the poor quality of construction meant that some of the structures and maintenance works were already disappearing at the time of the PCR mission.
- (vi) **Institutionalization of interventions.** In the case of the Pakistan Sustainable Livelihoods in the Barani Areas Project,¹¹⁶ the incorporation in the design of a demand-driven approach for targeting the poor and vesting the responsibility for operations and maintenance resting with community level organizations helped support sustainability of the investments.
- (vii) **Existing institutional or policy environment.** In the Viet Nam Irrigation and Flood Protection Rehabilitation Project,¹¹⁷ the sustainability of the project will depend on the government's introduction of participatory irrigation management.

C. Achievement of Results (Contribution to Outcomes)

141. **This review of the results (outcomes) achieved by the ANRRD portfolio is based on a review of evaluative evidence¹¹⁸ and on the four country case study assessments, which considered both the closed and active portfolios.** The outcome themes described in the evaluation's theory of change are: (i) increased agriculture and water productivity; (ii) integrated value chains; (iii) improved smallholder livelihoods (including gender equity); and (iv) enhanced sustainability and resilience of food systems and natural resources. This is followed by an assessment of crosscutting topics, including safeguards, and innovation. From the performance section and the review of individual evaluation criteria, particularly effectiveness and sustainability, it is clear that ADB's contributions have had mixed results.

1. Contribution to Increased Agriculture and Water Productivity

142. **ADB's contribution to increased agriculture and water productivity has been significant in terms of the volume of resources allocated but modest in results.** Almost 70% of ANRRD projects potentially contributed to improving agricultural productivity, but more than 70% of these were focused on rehabilitation and development of water infrastructure primarily for irrigation and drainage. There was far less support for other essential aspects of productivity, such as development of agricultural markets, agro-processing, improved farming and livestock techniques, agro-financing, policy reforms, institutional capacity, and agricultural research.

143. **Many of ADB's investments have been targeted at delivery of sufficient water to farmers in a timely manner.** Timely and efficient delivery of water continues to be a key need for the region, particularly in the context of climate change and competing water users. Such reliable water delivery makes a critical contribution to productivity, but complementary support for extension services is needed to maximize results. The Nepal Community Groundwater Irrigation Sector Project was the subject of an IED impact evaluation, which reported that irrigated land under the project produced 12.6% more paddy and 11.8% more wheat per cropping season than did non-irrigated farms. However, these yields were lower than expected, illustrating the continuing constraints on achieving the full potential benefits of shallow tube well irrigation in Nepal. These constraints included low complementary investments in fertilizer, seed, and extension services. The impact evaluation concluded that shallow tube well irrigation could not have

¹¹⁴ IED. 2012. *Impact Evaluation Study: Shallow Tubewell Irrigation in Nepal—Impacts of the Community Groundwater Irrigation Sector Project*. Manila: ADB.

¹¹⁵ ADB. 2008. *Validation Report: National Drainage Sector Project in Pakistan*. Manila.

¹¹⁶ IED. 2013. *Validation Report: Sustainable Livelihoods in Barani Areas Project in Pakistan*. Manila: ADB.

¹¹⁷ ADB. 2005. *Project Performance Audit Report: Irrigation and Flood Protection Rehabilitation Project in Viet Nam*. Manila.

¹¹⁸ Includes, but not limited to, validation of project completion reports, project performance evaluation reports, and impact evaluation reports, if any.

delivered the full increases possible in crop productivity on its own. The ongoing Water Resources Management Project in the Pyanj River Basin, for example, which was visited during the IED mission to Tajikistan, focuses almost entirely on improved water delivery.¹¹⁹ There was a small component on seed production and the project aimed to reestablish field seed laboratories at district offices of the Department of Agriculture; however, it is not clear how this would occur since the Ministry of Agriculture was not involved in the project. Notably, the executing agencies were the Ministry of Energy and Water Resources and the Agency of Land Reclamation and Irrigation, reflecting the focus on improved delivery of water. At design, the project's contribution to ADB corporate results was defined as an increase in land improved through irrigation, drainage, and/or flood management. In contrast, while the project's expected outcome is increased agricultural production, the expected increase in crop yields is very modest at 8%, which can be partially attributed to the limited project focus.

144. Where ADB investments did combine the necessary water management infrastructure with agricultural advisory support, the impact was greater, but it could take time for results to come to fruition. The evaluation mission to Bangladesh visited a subproject that had benefited from two sequential projects implemented over 15 years. These had combined irrigation infrastructure improvements with the introduction of high-yielding varieties of rice. Both projects were cofinanced by IFAD. An assessment by IED over the course of these two projects from 2000 to 2017, using remotely sensed data to track increases in crop yields, validated the yields reported by the farmers (Box 6). Remote sensing to establish baselines and to monitor achievement of spatially-related outcomes is ideal for the ANRRD sector and could be exploited more by ADB operations and evaluation departments. These beneficiaries are doing well, within the limits of what their smallholdings can provide, and they are benefiting from the increased yields and cropping intensity. Income generated has been reinvested in microfinance to support complementary livelihood activities such as handicraft production, fishing, and livestock raising. However, interviews during the evaluation mission indicated that connectivity to markets, fields, on-farm grain storage, seeding machines, and other mechanization were more important for these farmers than further investments in water resources. Overall, this example supports the case for improving results by combining water delivery infrastructure with extension services and through effective partnerships.

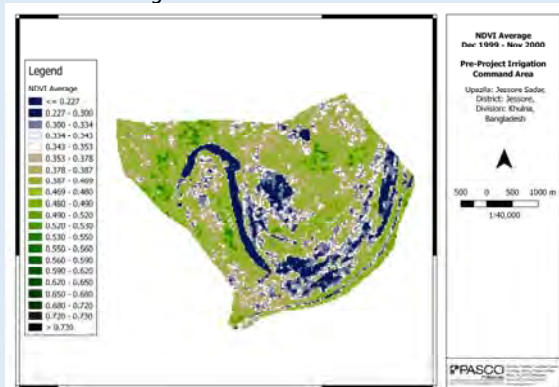
145. Where positive results supporting agricultural production have been achieved, ADB needs to consider how they can be extended beyond the lifetime of the project. The Agriculture Rehabilitation Project in Tajikistan fully rehabilitated the irrigation and drainage facilities in the project areas and the average yields of cotton increased from about 1.9 tons/hectare to 2.7 tons/hectare, exceeding the targets set at appraisal. An important component of the project was agricultural support services for *dehkan* (i.e., privately managed) farms in the form of on-farm demonstrations of soil fertility enhancement and crop husbandry, promotion of improved seeds, and establishment of farm machinery units. The Agriculture Academy of Sciences was responsible for implementing the subcomponent on farm demonstrations and promoting improved seeds. While results were positive and the impact significant, the project performance evaluation report (PPER) noted that, if mechanisms had been incorporated into the project design to sustain farm demonstration units beyond the project life, agricultural extension services could have been provided to *dehkan* farms on an ongoing basis.

146. Recent projects are adopting innovative technical and institutional solutions. The Madhya Pradesh Irrigation Efficiency Improvement Project is adopting approaches that may contribute to improved and sustainable results. On the technical side, the project includes pressurised irrigation systems to improve water use efficiency and uses remotely sensed data to measure a key outcome indicator for increased water productivity. On the institutional side, the project introduces design, build and operate contracts, where a private sector operator will operate and maintain the system meeting specified performance indicators for a period of 5 years after construction.

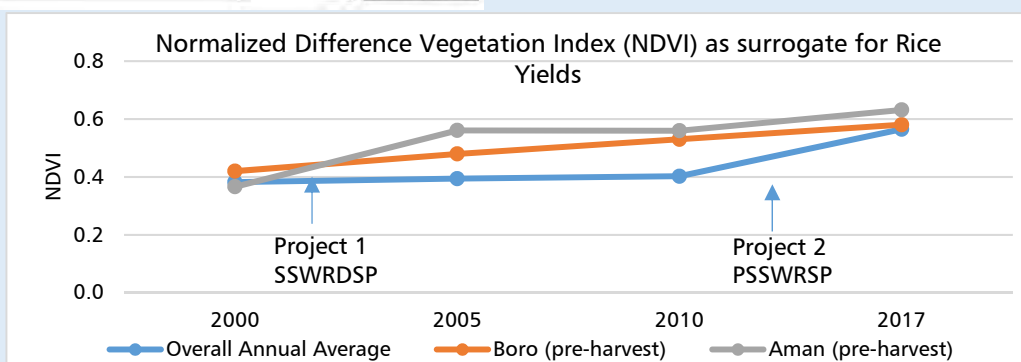
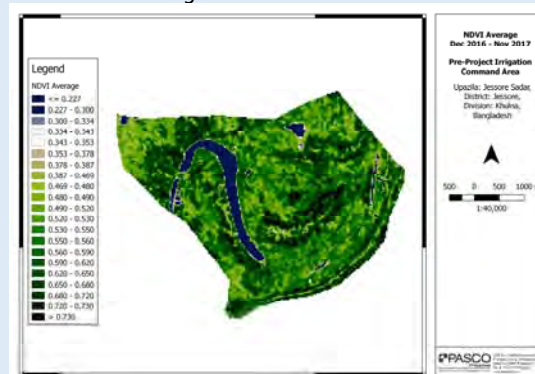
¹¹⁹ADB. 2016. *Report and Recommendation of the President to the Board of Directors: Proposed Loan, Grant, and Administration of Grant and Technical Assistance Grant to the Republic of Tajikistan for the Water Resources Management in Pyanj River Basin Project*. Manila.

Box 6: Using Remote Sensing to Evaluate Crop Yields in Bangladesh

Normalized Difference Vegetation Index (NDVI),
Average December 1999–November 2000



Normalized Difference Vegetation Index (NDVI),
Average December 2016–November 2017



NDVI = normalized difference vegetation index, PSSWRSP = Participatory Small-Scale Water Resources Sector Project; SSWRDSP = Small-Scale Water Resources Development Sector Project.

The evaluation team visited the Ichali Subproject in Upazila Sadar, District Jessore, Bangladesh, which was the location for two interventions: (i) the Small-Scale Water Resources Development Sector Project, and (ii) the Participatory Small-Scale Water Resources Sector Project.^a Both were cofinanced by International Fund for Agricultural Development and both adopted community approaches. The projects' objectives included improved water management through infrastructure investments and increased yields through the adoption of high yielding rice varieties. During the field mission, beneficiary farmers and LGED, the executing agency, reported before and after project increases in yields of 135% and 140% for Aman and Boro Rice respectively. Using the normalized difference vegetation index (NDVI), from remotely sensed data as a surrogate for crop yield, Independent Evaluation Department tracked the NDVI levels pre- and post-project during the harvest time of the Boro (April/May) and Aman (October/November) rice crops. The figures above show that relative increases of both varieties approximate a similar order of magnitude to officially reported values. The key observations are: (i) a combination of infrastructure, partnerships, community approaches and extension services (to support cultivation of high-yielding variety rice) supports positive results, and (ii) the achievement of these results can take time. These observations may partially explain the lower performance of many individual irrigation projects that focus primarily on water infrastructure and are limited to a standard project duration.

While Asian Development Bank has made use of remote sensing technologies in the project cycle,^b it is only recently that such technologies have been incorporated into design and monitoring frameworks. For example, the Madhya Pradesh Irrigation Efficiency Improvement Project included a remotely sensed outcome indicator for improved water productivity.^c Projects like these will make the achievement of such outcomes easier to monitor and evaluate. This technology should be mainstreamed as both a project management and an evaluation tool.

^a Asian Development Bank (ADB). 1995. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the People's Republic of Bangladesh for the Small-Scale Water Resources Development Sector Project*. Manila; ADB. 2009. *Report and Recommendation of the President to the Board of Directors: Proposed Loan and Administration of Loan to the People's Republic of Bangladesh for the Participatory Small-Scale Water Resources Sector Project*. Manila.

^b For example: ADB. 2018. *Measuring Rice Yield from Space: The Case of Thai Binh Province, Viet Nam*. ADB Economics Working Paper Series No. 541. Manila; Y. Siddiqi. 2017. *Water Brief: Measuring Water Use with Remote Sensing*. Manila: ADB.

^c ADB. 2018. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to India for the Madhya Pradesh Irrigation Efficiency Improvement Project*. Manila.

Source: Asian Development Bank (Independent Evaluation Department).

147. **ADB has had an impact on agriculture, but attribution can sometimes be difficult and requires more rigorous econometric approaches.** An example of a project that had a significant impact was the West Henan Agriculture Development Project in the PRC, since the project helped to improve rural incomes and alleviate poverty. However, as in many other instances, there were difficulties in attribution; the provincial government and the World Bank also implemented poverty reduction programs in the province and these might have contributed to income growth among the project's targeted poor households. Impediments to measuring a project's impact also emerged from the Rural Income Generation Project in Indonesia where it was impossible to measure and assess the project's impact in the absence of baseline data at start-up. The project framework also failed to specify the poverty reduction target. Estimating the impact that can be exclusively attributable to a particular project requires rigorous statistical and econometric procedures, together with adequate baseline data and control groups, to measure the situation that would have prevailed had the intervention not occurred.

2. Contribution to Agriculture Value Chains

148. **ADB contributed in varying degrees to key links in agricultural value chains, primarily input supply and production.** The main contribution of ADB assistance has been to smallholder producers and to the supply and production ends of the value chain through the provision of water and other inputs. ADB also supported the enabling environment (e.g., policy, access to finance, market infrastructure) necessary for successful value chains. However, few projects specifically targeted value addition, high-value markets, or work with consumers. As the value chain approach is relatively new to ADB, few projects have been organized around an entire value chain for a particular agricultural product. The potential benefits of a value chain approach have not yet been fully maximized.

149. **Rural infrastructure (e.g., rural roads) supports market links and is one of ADB's main entry points in supporting agricultural value chains.** Improved market connectivity and value chain links have been key project outputs. These have included the construction and upgrading of roads and bridges and of storage and market infrastructure for wholesale and retail trading. This is important for value chains, but is not sufficient to develop them. ADB's focus on infrastructure, although useful, has not always been aligned with the development of agriculture value chains. Transportation, markets, and other infrastructure need to be linked to production and market information in order for ADB to achieve better results. The evaluation mission to Cambodia revealed that other development partners clearly recognized ADB as having a comparative advantage and greater resources for providing market infrastructure supporting the enabling environment for agricultural value chains. However, without corresponding investment in related agricultural production, marketing and processing facilities, and a supporting policy environment, the infrastructure investments are less likely to deliver significant benefits.

150. **More support is needed to develop value chains than for production improvements and building infrastructure.** ADB's primary focus on production has limited its engagement with other actors, particularly those in the commercial private sector. ADB has not been heavily involved in value addition activities such as marketing, processing, exporting and retailing. The constraints within a value chain require a combination of support ranging from access to finance, policy reform, introduction of new processes and technology, and market information. While individual projects have addressed these issues in a piecemeal way, few evaluated projects have adopted a more holistic, integrated value chain approach.

151. **Recent projects have introduced a more focused value chain approach.** The Shanxi Inclusive Agricultural Value Chain Development Project had an exemplary design. It included rigorous value chain diagnostics for specific commodities—broilers (chicken), mushroom, jujube, and vegetables—that informed the project design. The project worked directly with agribusinesses and cooperatives and producers involved with these commodities. It built on an earlier project, the Shanxi Integrated Agricultural Development Project, which had key value chain elements. As supporting value chains can be a complex and time-consuming process, building on past experience through follow-on projects can lead to positive results. The Horticulture Value Chain Development Project in Uzbekistan is another focused

value chain project that aims to help financial institutions expand their lending portfolios to farmers and enterprises to finance horticulture operations, including planting materials, greenhouses, intensive orchards, processing and storage facilities, and machinery and equipment. In 2018 an additional financing loan was approved to scale-up this approach.

152. **There are few examples of ADB supporting policy reform to improve value chains.** Although 16 evaluated projects were classified as supporting policy and institutional capacity, only five made a substantial effort to address policy and institutional constraints. A notable ongoing project that was visited during the Cambodia country mission was the Climate-Resilient Rice Commercialization Sector Development Program. This program is interesting in that it is one of the few to combine a policy and investment loan to address policy constraints and invigorate production. The program was also useful in that it highlighted that some of the challenges in implementation, e.g., working with a new implementing agency and across ministries. However, the program would have benefited from greater implementation support as, while it offered the prospect of potentially greater impact, the project was more complex and challenging to implement than a standard irrigation rehabilitation project, such as the Uplands Irrigation and Water Resources Management Sector Project in Cambodia, with an established implementing agency.

153. **All but one of the 15 nonsovereign ANRRD operations approved during the evaluation period supported agribusiness and therefore contained considerable value chain content.** The projects addressed private sector agricultural marketing, input supply, processing enterprises, and large-scale livestock, dairy, or farming enterprises. One project involved rural water supply in the PRC. Few of the projects supported the entire value chain for a commodity, although one came close, the Olam International Limited Regional Agricultural Value Chain Development project¹²⁰ for coffee (Indonesia, Papua New Guinea, Timor-Leste, and Viet Nam). While many of the designs looked promising, a number of these projects have been fully or partially cancelled, limiting their contribution to value chain development and highlighting the many challenges facing the sector.

154. **One characteristic of the value chain approach to investment projects is that most agricultural value chains involve a combination of public and private actors.** About 21% of ANRRD projects mentioned the private sector as a beneficiary of the investment, mainly indirectly through policy reform or through other enabling environment support. Few ADB sovereign projects worked directly with the private sector. Box 7 highlights IFAD's approaches to supporting value chains through its sovereign operations, including an approach that works directly with private sector partners.

155. **There have been limited synergies between sovereign and nonsovereign ANRRD operations, and no joint projects.** ADB needs to pursue synergies between its sovereign and nonsovereign operations. However, the PSOD agribusiness team and some regional department staff recognize the issue. The East Asia Department and PSOD highlight that in a recent 2018 operation (in Mongolia), a potential PSOD client was identified from a sovereign value chain project.¹²¹ It is acknowledged that this is a model worth replicating.

¹²⁰ ADB. 2017. Reports and Recommendations of the President. Agricultural Value Chain Development Project.

¹²¹ ADB. 2015. *Report and Recommendation of the President to the Board of Directors: Proposed Loans for Additional Financing and Administration of Technical Assistance Grant to Mongolia for the Agriculture and Rural Development Project*. Manila.

Box 7: The International Fund for Agricultural Development's Strategy to Promote Public-Private-Producer Collaboration in Agricultural Value Chains

The International Fund for Agricultural Development (IFAD) has progressively turned to projects which incorporate actions and investments by the public, private, and producer (farmer) sectors. The objective is primarily to catalyze additional financial resources and technology, and to facilitate market access for farmers. Since IFAD does not have a private sector financing window, this expanded engagement with the private sector needs to occur within sovereign operations (IFAD provides loans to governments and can provide grants to governments, private enterprises, or nongovernment organizations [NGOs]). IFAD's role, in addition to finance, is to be an honest broker and facilitator, bringing target beneficiaries, private sector actors, governments, and other stakeholders together.

The model is applied primarily to agricultural value chain projects, using one of three models. The first is a producer-driven model under which producers are organized in groups, associations or cooperatives, which take on production and, sometimes, post-production functions that aim at capturing the largest share of the retail value. An example of this model is Guatemala's Program for Rural Development and Reconstruction, which supports several farmers' organizations, including indigenous women's groups that sell fresh vegetables to local exporters and United States supermarkets.

A second model is intermediary-driven, under which an NGO or a service provider brings the parties together, provides them with services and brokers and monitors value chain linkages. An example of this model is the Nepal High-Value Agricultural Development Project in Hill and Mountain Areas. The project's implementation strategy is based on an "inclusive business approach" whereby value chains are strengthened and expanded with inputs from private agribusinesses interested in working with poor rural producers of high-value commodities. An NGO was responsible for linking the producers with the agribusinesses.

The third model is buyer-driven, under which private businesses (e.g., processors, retailers, traders, and wholesalers) organize farm-level producers into suppliers through various contractual arrangements such as contract farming. An example of this model is the Uganda Vegetable Oil Development Project. This began with IFAD's Vegetable Oil Sub-Sector Support Program in Uganda supporting oil-bearing field crops, including sunflowers, soybeans, groundnuts, and sesame. This program reached over 200,000 beneficiaries in the northern regions of the country. It also established 110 small private oil seed mills throughout the growing areas. This project was followed up by the 2017 National Oil Palm Program, a large public-private partnership focusing on value chain development in which IFAD played an important role in safeguarding smallholder interests. An important aspect of this operation was the participation of a private partner, BIDCO Oil Refineries Ltd. of Kenya, that resulted in the development of an oil palm plantation on Bugala Island in Lake Victoria. The private enterprise also purchased the produce of small farmers and invested a substantial amount of resources in the project. An important element of the program was the support provided to farmers' organizations and community empowerment, carried out through government, private enterprises, and cooperative organizations.

Source: International Fund for Agricultural Development.

156. **The World Bank Group has suffered a similar lack of linkage between sovereign (IBRD/IDA) and nonsovereign (IFC) agricultural operations, but this is now being corrected.** Both the World Bank and IFC report significant benefits from enhanced collaboration, which has resulted in joint analytical work and in the preparation and financing of IFC-World Bank projects in agriculture. For example, the World Bank Group in Viet Nam is maximizing finance for development¹²² through a collaborative and coordinated approach with the government, combining: (i) World Bank financing to strengthen the competitiveness and sustainability of coffee and rice value chains; (ii) the World Bank Group's Finance, Competitiveness and Innovations Global Practice, which provides advisory support for capacity building and institutional

¹²²Based on the UNCTAD (2014) World Investment Report 2014 (http://unctad.org/en/PublicationsLibrary/wir2014_en.pdf), achieving the Sustainable Development Goals to end extreme poverty by 2030 will require about \$4.5 trillion annually, far more than multilateral development banks or donors can provide by themselves. To face this challenge, the World Bank Group adopted the maximizing finance for development approach, which entails working with governments to crowd in the private sector while optimizing the use of scarce public resources. This approach is guided by the Hamburg Principles adopted by the G20 in 2017 and builds on the substantial experience across the institution.

reform to promote, facilitate, and retain private investments in the targeted sectors; and (iii) IFC direct investments in private companies active in coffee and rice production, processing, and exports and IFC advisory services to firms. Reviewing the World Bank group's experience with joint projects, an Independent Evaluation Group study¹²³ confirmed that its "maximizing finance for development" approach offers potential benefits, including de-risking, pioneering investments, and complex transnational operations. However, to date joint projects represent only a tiny fraction of World Bank Group approved projects, highlighting the concerted effort needed to bring these projects to fruition. Although the ultimate goal of the World Bank Group is to promote synergies and collaboration, including joint activities in their projects but not necessarily joint projects. In addition to the work in Viet Nam, the Cashew Value-Chain Competitiveness Project in Cote d'Ivoire is often highlighted as good demonstration project of how the IFC and IBRD/IDA collaborate during project design and implementation.

157. A missed opportunity for potential ADB sovereign and nonsovereign operations collaboration was the Cambodia Spice Value Chain Development project.¹²⁴ The private sector partner, supported by PSOD, was growing pepper and turmeric for processing. However, it has struggled to organize outgrowers capable of providing the desired volume of production. At the same time, ADB has a successful sovereign project, the Tonle Sap Poverty Reduction and Smallholder Development Project, which includes expertise and experience in organizing and training smallholder farmers and, through additional financing, is now expanding to the province where the private sector partner is working. But at the time of the evaluation, these projects had not had discussions.

3. Improved Smallholder Livelihoods (Including Gender Equity)

158. ANRRD projects have promoted inclusive growth and supported smallholder development. As many smallholders are directly involved in farming, they have benefited from the focus in ADB-financed projects on production. More reliable access to water and in some cases better inputs, improved technology, and higher-yielding varieties have generally led to an increase in production and net benefits for smallholder farmers. A limitation recognized in many validation reports is that the number of beneficiaries is often overestimated at the design stage, resulting in a reduced scale of actual impacts compared with appraisal target estimates.

159. Agriculture is an important sector from a poverty reduction standpoint as agriculture projects often work directly with poor households. Around 59% of ANRRD projects have targeted beneficiaries directly. Many community-based projects, although small and limited in number, have performed well. The community and poverty alleviation focus has often provided a range of important outputs for development (e.g., small-scale infrastructure, access to microcredit, and capacity building).

160. The Japan Fund for Poverty Reduction has been an important instrument for supporting smallholder farmers. It is focused on adding value to projects to assist the poorest and most vulnerable to foster social and economic development. Many of its projects focus on innovation and working directly with beneficiaries to build their capacity. For agriculture, Japan Fund for Poverty Reduction has been instrumental in supporting smallholder agriculture (e.g., in Afghanistan) and as well as community-based management of natural resources (e.g., in Mongolia).

161. The evaluation found that ADB's work in the Tonle Sap area has had positive results. During discussions with the Cambodia resident mission, it was clear that, although project performance had been variable, ADB has been engaged in the area for more than 15 years and has worked in partnership with IFAD, leveraging IFAD's expertise in working with poor farmers. The ongoing Tonle Sap Poverty Reduction and Smallholder Development Project provides a good example of the types of activities supported in

¹²³ IEG. 2018. *Creating Markets: Learning from World Bank Group Joint Projects*. Washington, DC.

¹²⁴ ADB. 2013. *Report and Recommendation of the President to the Board of Directors: Proposed Compulsory Convertible Debentures Investment, Loans, and Administration of Loans Akay Flavours & Aromatics Pvt Ltd Akay Flavours & Aromatics (Cambodia) Pvt Ltd for the Spice Value Chain Development Project in India and Cambodia*. Manila.

these interventions (e.g., improved access to quality seeds, markets, and agricultural extension through innovative rural information and communications technology).

162. **Few projects to date have sought to commercialize smallholders or to establish better off-farm links, enabling smallholders to become active participants in the value chain.** However, a number of the PSOD agribusiness projects work with outgrowers. The PRAN Agribusiness Project in Bangladesh illustrates a potentially useful approach. The project supports smallholders to bring cassava into production on otherwise marginal land; however, its reach in terms of beneficiaries has been less than anticipated, largely because of the company's limited processing capacity. Another agribusiness project, the Environmentally Sustainable Agriculture Input Development Project, which was visited during the evaluation team's mission to the PRC, has the potential to provide much more significant benefits to a substantial number of farmers as it intends to develop production service centers that will sell fertilizer, seeds, and other agricultural inputs, equipment, and advisory services to farmers in many locations and for different commodities. Although ADB does support technical and vocational education and training (TVET) and SME development, it does not consistently make the link between these activities and its agriculture work.

163. **Weaknesses in project DMFs limit assessments of the nature and extent of project impacts on smallholder farmers.** Considerable difficulties have been encountered in determining the correct baseline figures and setting realistic final target indicators in the DMF for improvements in beneficiaries' incomes as a result of project activities. This in turn makes it hard to measure the project's impact on beneficiaries. Improving the DMFs will become critically important as projects evolve from the community-driven development type to projects that focus more on commercialization.

164. **Many ANRRD activities can directly engage and benefit women.** Activities that target gender in ANRRD, such as the community-focused Tonle Sap Poverty Reduction and Smallholder Development Project are appropriate since many women are engaged in agricultural work. This project engaged directly with women, including supporting livelihoods. In Bangladesh, ADB has supported agriculture extension services, and has introduced labor-saving technologies in cultivation and agriprocessing. Such projects directly address women farmers' limited access to farm energy, mechanization, and basic agricultural and agriprocessing tools. Innovative financing mechanisms targeting households headed by women also provide positive benefits. Unfortunately, many of the large water infrastructure projects provided few direct benefits. Although many of them, including some in Bangladesh and Cambodia, supported water users' associations, and included gender targets for participation, these were usually not explicit in terms of empowerment, improved welfare, or other outcomes.

165. **Gender mainstreaming has generally resulted in positive outcomes in the sector, with scope for more.** Of the 114 approved projects during the period, 87 projects (76%) were found to have gender action plans. For the 110 evaluated projects, half reported on gender outcomes (Figure 29). About 42 PVRs (38%) of these validation reports indicated the use of a gender action plan and inclusion of gender targets in the project DMF. Of the 42 PVRs with gender action plans, 35 (83%) were circulated during 2010–2017, demonstrating more concerted attention to gender in recent years. Of the 35 projects, 5% indicated some unintended positive gender outcomes,¹²⁵ such as, "women particularly benefited from the project because they were primarily responsible for farm cultivation and livestock,"¹²⁶ "both men and women participated in study tours and attended training; both men and women help each other carry rice and firewood (previously only women transported rice from fields to rice barns and collected firewood),"¹²⁷ and "Project monitoring did not estimate impacts on women. However, increased household income and improved access to water suggest a substantial net benefit to women in the project area."¹²⁸ However, 6% identified unsatisfactory gender outcomes, such as the failure to achieve specific

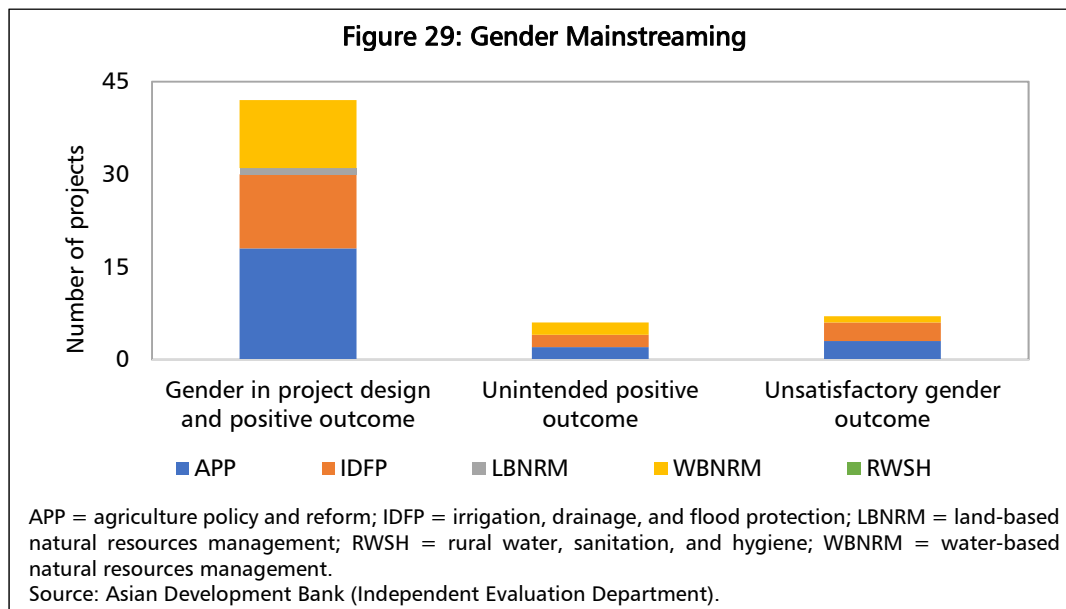
¹²⁵ Unintended as there was no mention of a gender action plan or targeted outcome for women in the project design.

¹²⁶ IED. 2014. *Validation Report: Fujian Soil Conservation and Rural Development II Project in the PRC*. Manila: IED.

¹²⁷ IED. 2013. *Validation Report: Decentralized Irrigation Development and Management Sector Project in the Lao People's Democratic Republic*. Manila: ADB.

¹²⁸ IED. 2012. *Validation Report: Chashma Right Bank Irrigation Project (Stage III) in Pakistan*. Manila: ADB.

targets on women’s participation and access to services. This occurred in the agriculture policy and production, irrigation, drainage, and flood protection (IDFP), and water-based natural resources management subsectors.

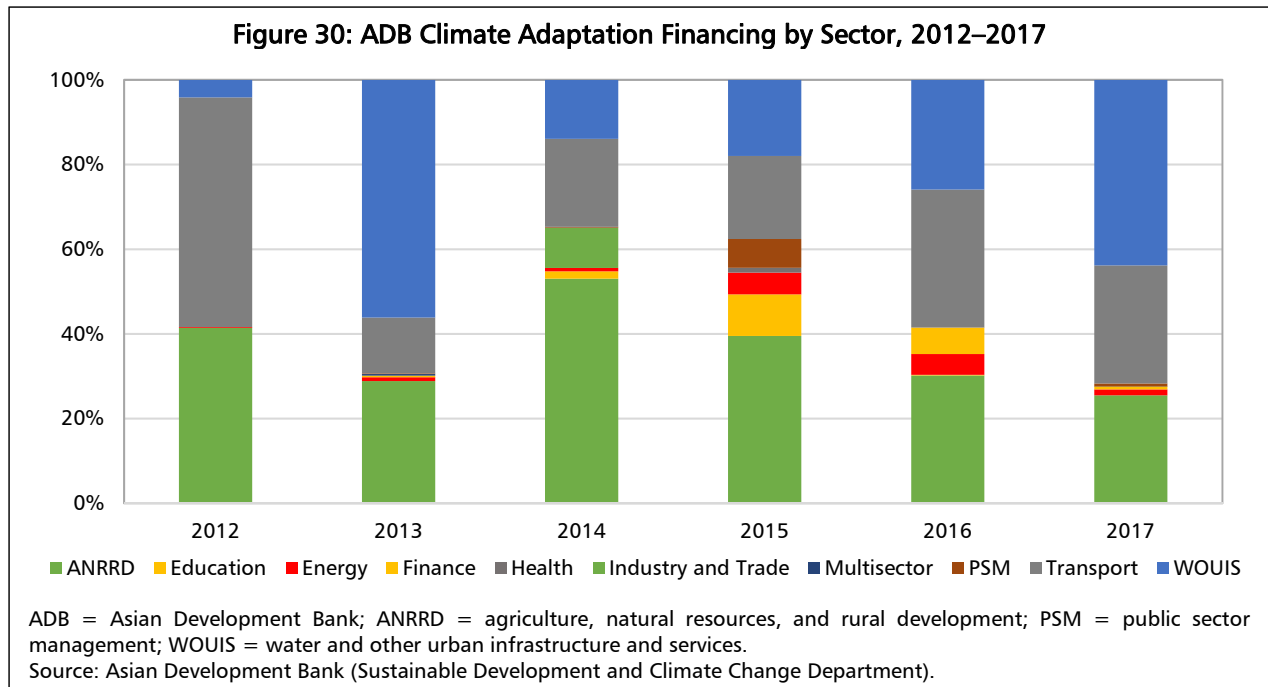


4. Enhanced Sustainability and Resilience of Food Systems and Natural Resources

166. **ADB projects contribute to the protection and enhancement of natural resources.** They do this through their own intrinsic value and through the ecosystems services they provide to support agriculture. ANR projects contribute to natural resource management and climate resilience through conservation farming and reforestation, rehabilitation and development of rural infrastructure, structural and non-structural flood protection management, resettlement, and environment management, and development of stronger institutional capacities.

167. **Climate-related financing through ANRRD plays a critical role in enhancing climate resilience, through river basin approaches; however, this potential is not yet fully realized.** ANRRD contributes most significantly to climate change through adaptation investments—for 2012–2017, total adaptation financing in ANRRD amounted to \$1.8 billion (78% of the total ANRRD climate financing). Most adaptation financing was through ANRRD (35%) followed by transport and water and other urban infrastructure services sectors with 29% each. Overall, the trend for adaptation financing across all sectors has been erratic (Figure 30), averaging about \$857 million per year—far below the corporate target of \$2 billion by 2020. ANRRD has the potential to contribute significantly to reaching this target and to deliver results beyond agriculture—e.g., adaptation investments in flood risk management improve resilience across the river basin and help protect lives, livelihoods, and assets across urban, transport, and energy infrastructure sectors in particular. However, it is rare for water-related infrastructure projects to consider wider basin water availability beyond the project area. Mitigation financing for ANRRD amounted to only \$512 million (22%); more could be done in this area including assessments of greenhouse gas contributions from different agricultural sources and measures to better manage these emissions. A recent positive example is the Climate Adaptation in Vennar Subbasin in Cauvery Delta Project, which aims to mitigate the impacts of climate change by reducing flood risks and improving the distribution of water for irrigation in an increasingly water-stressed area.¹²⁹

¹²⁹ADB. 2016. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to India for the Climate Adaptation in Vennar Subbasin in Cauvery Delta Project*. Manila.



168. **The ADB program in the PRC has been active in protecting the intrinsic value of wetland protected areas and would benefit from greater use of remote sensing to track results.** For example, the Sanjiang Plain Wetlands Protection Project aimed to achieve an integrated conservation and development model to protect the natural resources (biodiversity, water, forests) of the Sanjiang Plain wetlands—a biodiversity hotspot for many endangered migratory birds—in the northeast of the PRC, and at the same time to improve the well-being of local communities.¹³⁰ An IED PPER of this project demonstrated that its pioneering and successful provision of alternative livelihoods to affected persons (such as through forest resources management, wetland attendance, and ecotourism) as well as through non-cash compensation or in-kind support can work in wetland restoration projects. Less clear from this PPER was the achievement of targets for wetland restoration—converting farmland back to wetland. While converted wetlands were observed in the field, independent verification was not possible. IED used remotely sensed data to examine the extent to which this objective was achieved (Box 8). This technology could be used more routinely in similar projects by ADB operations and evaluation departments to track achievement of spatially-related outcomes.

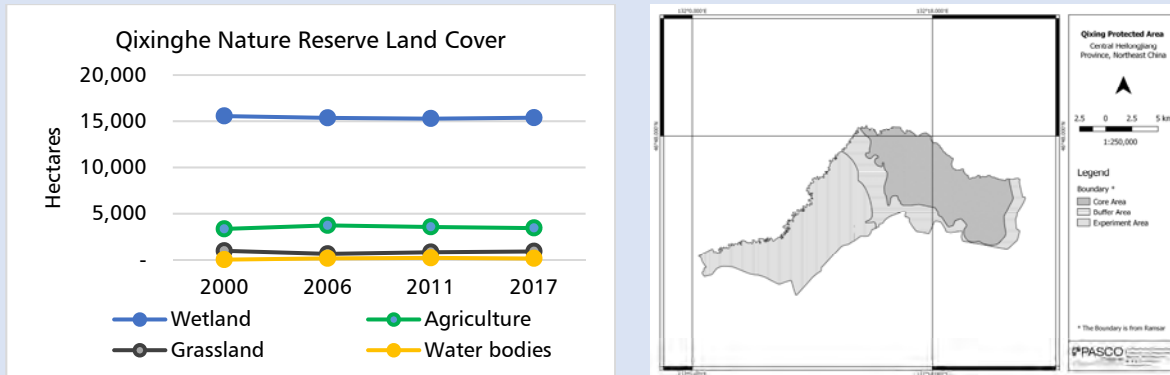
169. **Projects cofinanced by the Global Environment Facility generally achieved positive results for the environment and ecosystems, especially in the PRC.** Six completed projects during the evaluation period were cofinanced by the GEF, two in the PRC (Sanjiang Plain Wetlands Protection Project and Capacity Building to Combat Land Degradation Project), one in Uzbekistan (Land Improvement Project) and one in Tajikistan (Rural Development Project), one in Sri Lanka (Protected Area Management and Wildlife Conservation Project) and one in Bangladesh (Sundarbans Biodiversity Conservation Project).¹³¹ All except for the Tajikistan and Bangladesh projects were successful. Demand for GEF financing was highest in the PRC, as confirmed during interviews with the government. There were 16 grants amounting to a total of \$95.6 million that were cofinanced by GEF from 2005 to 2017, and half of these were in the PRC. The GEF

¹³⁰IED. 2016. *Performance Evaluation Report: Sanjiang Plain Wetlands Protection Project in the People's Republic of China*. Manila: ADB.

¹³¹Footnote 130; IED. 2011. *Validation Report: Capacity Building to Combat Land Degradation Project in the People's Republic of China*. Manila: ADB; IED. 2017. *Validation Report: Land Improvement Project in Uzbekistan*. Manila: ADB; IED. 2016. *Validation Report: Rural Development Project in Tajikistan*. Manila: ADB; IED. 2012. *Validation Report: Protected Area Management and Wildlife Conservation Project in Sri Lanka*. Manila: ADB; IED. 2008. *Validation Report: Sundarbans Biodiversity Conservation Project in Bangladesh*. Manila: ADB.

also financed or cofinanced a total of 29 TA projects, including 10 in the PRC and eight regional TA projects.

Box 8: Using Remote Sensing to Evaluate Results: Wetland Restoration in the People's Republic of China



The Sanjiang Plain wetlands are one of the richest areas of globally significant biodiversity, particularly for water birds, in the People's Republic of China. However, the area of the wetlands has been reduced by 80% from its size in the 1950s due to multiple pressures, most notably drainage to reclaim land for farming. An Asian Development Bank loan for \$15.0 million was cofinanced by a Global Environment Facility grant of \$12.1 million administered by Asian Development Bank. The project aimed to implement an integrated conservation and development model to protect the natural resources (biodiversity, water, and forests) of the Sanjiang Plain wetlands and their watersheds from continued threats while improving the well-being of local communities.

The Independent Evaluation Department carried out a project performance evaluation of the Sanjiang Plain Wetlands Protection Project in Heilongjiang Province.^a The project was implemented between 2005 and 2013 and focused on six wetlands protected areas. To explore the use of remote sensing to evaluate such natural resources, Independent Evaluation Department used freely available earth observation Landsat satellite data to assess changes in land cover in the Qixinghe Nature Reserve, where project wetland restoration activities were completed between 2006 and 2008. Remotely-sensed data over four time slices were used in 2000, 2005, 2011, and 2017 to track land cover change before and after the project. The data in the figure indicate that, since the project began in 2005, the increase in agriculture use has halted. The core zone of the wetland now has no agriculture activities although in the buffer and experimental zones, ongoing agriculture activities require continued attention.

^a Independent Evaluation Department. 2016. *Performance Evaluation Report: Sanjiang Plain Wetlands Protection Project in the Peoples' Republic of China*. Manila: ADB.

Source: Asian Development Bank (Independent Evaluation Department).

170. **Technical assistance plays an important role in promoting biodiversity gains.** The Core Environment Program and Biodiversity Conservation Corridors Initiative (CEP-BCI) in the GMS has been supported through two regional technical assistance (RETA) grants. The CEP-BCI aims to reconcile development objectives in the GMS economic corridors with conservation and sustainable use of ecosystem services in priority transboundary landscapes and associated biodiversity corridors. IED is completing a technical assistance performance evaluation report on the CEP-BCI and initial findings are presented in Box 9.

Box 9: Core Environment Program and Biodiversity Conservation Corridors Initiative (CEP-BCI)

The Core Environment Program and Biodiversity Conservation Corridors Initiative (CEP-BCI) in the Greater Mekong Subregion (GMS) is a regional technical assistance (TA) project. With planned phases 1, 2, and 3, CEP-BCI was launched in 2006 to support a poverty-free and ecologically rich GMS. Total financing to date for the CEP-BCI has amounted to about \$60 million, financed by the governments of Finland, the Netherlands, and Sweden, the Nordic Development Fund, the Global Environment Facility, and Asian Development Bank. It is administered by ADB and its implementation has been led by the GMS Working Group on Environment comprising representatives from the environment ministries of the six GMS countries. The Environment Operations Center based in Bangkok acts as the working group's secretariat and provides technical support to implement the program. Key findings from the Independent Evaluation Department's TA performance evaluation include the following.

The program was ambitious in scope but aimed to address key needs of the GMS countries. CEP-BCI has addressed a broad range of issues, including strategic environmental assessment; biodiversity conservation; environmental performance assessments; and institutional capacity building. With additional financing, two components related to climate change were added. This made the program more complex and its progress and effectiveness harder to monitor and measure.

Regional program support by ADB has been widely regarded as benefiting the program. One significant achievement of CEP-BCI was to unite the GMS countries around a common strategy to mainstream the environment in key sectors, including energy and transport and to better address climate change through the development and implementation of climate resilience and low-carbon strategies. Achievements have included (i) introducing and supporting the biodiversity corridor concept linked with livelihood improvement in Cambodia, Lao People's Democratic Republic, People's Republic of China, Thailand, and Viet Nam; (ii) strategic environmental assessments for power development plans in Viet Nam; and (iii) initiation of the Green Freight Initiative by Thai Government and its scaling up both nationally and in Cambodia and Viet Nam.

Program management and institutional arrangements are key to driving efficient and effective implementation. Various factors contributed to the significant implementation delays experienced during phases 1 and 2 of the program. The unpredictability and variable timing of donor funding and tranche releases were one factor. On the government side, there were also significant start-up delays with respect to program activities, which in turn delayed disbursements and the subsequent release of funds by the development partners. ADB's procurement and disbursement procedures and requirements were also viewed as an underlying delaying factor, with adverse impacts on overall implementation. Given the large scale of funds for the six GMS countries, a regional TA such as the one that supports CEP-BCI requires more proactive and robust management arrangements than those utilized for other smaller single-country TA projects.

Knowledge sharing and dissemination activities were beneficial. CEP-BCI has provided abundant knowledge products that ADB uses for project preparation and other purposes. The Environment Operations Center's shared knowledge function has been very useful for the GMS governments. The accumulated knowledge and publications have been used by GMS countries, but they could have been better used within ADB. For example, the program demonstrated that the Green Freight Initiative was cost-efficient and had broad applicability, but it is not widely known among ADB transport divisions. It is important for ADB to maximize and disseminate the CEP-BCI experience more widely and to contribute to building up climate resilient society for GMS countries' environmentally sustainable growth. The proposed phase 3, which is under preparation, provides an opportunity for this wider uptake of results.

Source: Asian Development Bank (Independent Evaluation Department).

171. **There are few examples outside the PRC of borrowing for work on natural resources management, but these projects can have a significant impact.** A feature of Indonesia's Coral Reef Rehabilitation and Management Program, a three-phase program, was the support it gave to the government's goal of shifting the focus from resource utilization to sustainable management of marine resources. Phase 2 contributed to the development of marine protected areas and brought the concept of conservation to the fishing subsector. The program supported the development of policies and strategies for coral reef management and for implementing a coral reef management plan at the national, provincial, and district levels. Challenges remain, and sustained support is needed to provide adequate resources for implementing community-based management of the coral reefs and mangroves on which the nearby coastal communities depend. However, a follow-on third phase project was cancelled.

172. **The PRC ANRRD portfolio has a number of urban water-based natural resource management projects, but they make a limited contribution to agriculture and food security.** Eight projects in this portfolio appear to focus largely or exclusively on environment-related investments in urban areas with minimal, if any, focus on agriculture, food security, and rural development. While these projects do address issues that are important for rural–urban linkages, such as upstream sources of downstream pollution, their relevance to agriculture and food security objectives is questionable.

173. **ADB support to strengthen the resilience of food systems has mainly been delivered through its flood risk management projects.** Reductions in food losses, improvements to food safety and quality, and better nutrition are sometimes addressed as secondary or tertiary goals of large projects that also address productivity and climate resilience, as illustrated by the Songhua River Flood Management Sector Project in the PRC. This project aimed to reduce flood damage in the basin through integrated river basin management and improved flood protection. It had a significant overall outcome, including the establishment of an effective and enhanced flood control management system, and it also facilitated investments in agriculture and other economic activities. The Khatlon Province Flood Risk Management Project aimed to help Tajikistan address recurring flood risks through a holistic and coordinated approach involving both physical and non-physical measures in one of the most flood-prone areas in the country. During the field mission, IED observed the built infrastructure and met with implementing staff and authorities. The project helped to protect adjacent agricultural land and there have been no breaches of embankments. However, funding for the maintenance of the embankments remains a challenge for the Agency of Land Reclamation and Irrigation. An early warning system planned under the project was not yet functioning. Both these issues are a threat to longer-term results. On the positive side, the ongoing Water Resources Management Project in the Pyanj River Basin, which was visited during the IED mission to Tajikistan includes a component to improve the hydrometeorological network for monitoring and forecasting, with complimentary approaches planned in a loan under preparation in neighbouring Afghanistan.

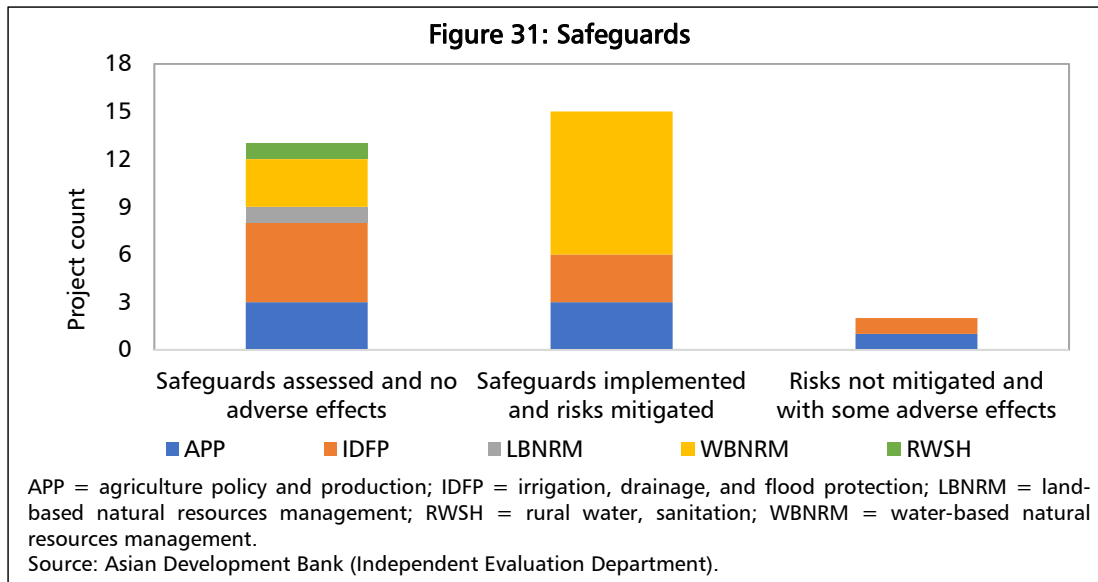
D. Crosscutting Aspects

1. Safeguards

174. **Available information on involuntary resettlement, indigenous people, and environmental safeguards in the 110 PVRs covered by the study was assessed.** Only 29% of the PVRs provided any discussion of safeguards. About 25% of the validated projects in the database reported no safeguard violation or successful implementation of safeguards resulting in the mitigation of social and environmental risks (Figure 31). These features were specifically found in the water-based natural resources management subsector. The Chashma Right Bank Irrigation Project Stage III was found to have safeguard issues, which were taken up in the Compliance Review Panel.¹³² The Dera Ghazi Khan Rural Development Project was reported as having concerns over land and indigenous peoples, however no complaints were registered.¹³³

¹³²IED. 2012. *Validation Report: Chashma Right Bank Irrigation Project (Stage III) in Pakistan*. Manila: IED.

¹³³ADB. 2008. *Validation Report: Dera Ghazi Khan Rural Development Project in Pakistan*. Manila.



2. Innovation

175. **ANRRD projects recognized the importance of innovation but were limited in ambition, and there were few attempts to replicate and upscale successes.** Agriculture and production and water-based natural resource projects often included innovative elements in terms of adopting technology and/or applying it more widely. Farm-based agriculture projects often used demonstration plots to introduce new technologies and practices (e.g., sloping agricultural land technology). Water-based natural resource projects have often sought to introduce new technologies. However, truly innovative elements were often limited in scope and resources. In the PRC, the Anhui Chao Lake Environmental Rehabilitation Project is a good example, as it has both a pilot activity and is introducing new technologies. The project improved the institutional capacity of the Chao Lake Management Authority, which has responsibility for all lake-related issues, covering numerous sectors—perhaps a unique feature of ADB supported projects and a good local-level model towards greater integrated water resources management. The project introduced a novel early warning system using remote sensing and a lake circulation model to predict algae bloom conditions, giving the government authority an opportunity to respond. The model is reported to have a 70% accuracy rate. The project also supported a pilot rural nonpoint source pollution control activity focusing on the control of agricultural pollution sources. Given the magnitude of the nonpoint source pollution from agriculture, however, this pilot is quite small in terms of the financial resources provided. The component was also delayed, causing the project to be extended, which highlights some of the difficulties of trying to address difficult but important interventions. Few projects contained explicit attempts to replicate or scale up successes. From the Cambodia country case study, the use of additional financing is a positive example of ADB's efforts to replication.

176. **TA has been important for innovation and new initiatives and supporting regional cooperation.** About 20% of TA resources support innovation. Following the two operational plans, TA was used to address new priority areas, (e.g., responding to the food price crisis, food safety, environmental and climate change issues). TA is also being used to support important bilateral relationships that support the introduction and use of new technologies (e.g., geographic information systems and remote sensing). In terms of new technologies and practices, ADB also carries out TA in collaboration with the International Agricultural Research Centers; however, this partnership receives far less TA support from ADB than in the past. Collectively, the TA has also contributed to a number of publications and events aimed at consolidating and sharing lessons from innovation. Much of the innovative work supporting regional cooperation in the GMS has been funded with TA such as the Core Environment Program and Biodiversity Conservation Corridors Initiative and the Coastal and Marine Resources Management in the Coral Triangle.

In addition, the GMS Core Agriculture Support Program promoted working with private sector on traceability for food safety using barcoding and blockchain, and the use of LIDAR technology and drone survey for asset management and engineering design. However, there are limited explicit examples of innovation of large RETA resulting in investments.¹³⁴

3. Development Coordination and Partnership

177. **Development coordination and partnerships need to be strengthened.** ADB has recognized that FAO and IFAD can be key partners but, despite goodwill and joint meetings, little progress has been made, particularly in terms of cofinancing. Differing operating models (FAO) and institutional schedules (IFAD) have made formal cofinancing challenging. Nevertheless, ADB has cofinanced projects with IFAD, the most significant being in Indonesia¹³⁵ where ADB is financing the improvement of irrigation system operation, maintenance, and water delivery to farmers. At the same time, IFAD is providing parallel financing to improve the delivery of agricultural services to maximize the benefits of the irrigation improvements. While this is an ideal example, it will also be difficult to replicate as ADB's resources are significantly greater than IFAD's and the gap is widening. IFAD cannot be expected to provide consistent complementary financing for ADB's infrastructure investments. Another important factor in Indonesia was that ADB international staff were posted to the resident mission, which made liaising with IFAD and the government easier. During the mission in Cambodia, the donor working group on agriculture indicated that it did not have regular interaction with ADB staff as international staff were no longer based in Cambodia and national officers were primarily focused on project implementation. More generally, TA has been a useful way of facilitating and maintaining partnerships, e.g., ADB's knowledge partnership with the International Food Policy Research Institute (IFPRI).

E. Summary

178. **ADB's support for sustainable agriculture and food security between 2005 and 2017 has improved and it now has the potential to make a substantial contribution.** Success rates averaged below 60% for the first 5 years of the implementation period and over 75% for the last 5 years of the period, averaging 64.5% overall, which was at par with the ADB average (64.9%). Sustainability was the lowest rated criteria. Projects in the flood protection, water- and land-based natural resources management subsectors performed best, while those supporting agricultural production and irrigation and drainage performed less well. The irrigation subsector's low performance of 47% is a concern given it comprised 30% of the portfolio over the evaluation period, and this share has been growing significantly over time.

179. **ADB's results for activities designed to increase agriculture and water productivity have been significant in terms of volume of resources but modest in results, which take time to fully accrue and appear greatest when delivery of water is combined with on-farm extension support.** ADB contributed to varying degrees to key links in agricultural value chains, primarily to input supply and production and mainly through infrastructure. ANRRD projects have promoted inclusive growth and supported smallholder development, but the scale needs to be ramped up. ADB projects contribute to the resilience and enhancement of natural resources both for their own intrinsic value and for the ecosystems services they provide to support agriculture. Climate adaptation deserves greater attention given the significant likely impacts on the temporal and spatial availability of water for which agriculture is the dominant user, and for the potential wider resilience gains, for example from flood protection, that will benefit other sectors, assets, and communities.

¹³⁴ For example, GMS Biodiversity Conservations Corridors Projects in Cambodia, Laos PDR and Viet Nam.

¹³⁵ ADB. 2017. *Report and Recommendation of the President to the Board of Directors Proposed Results-Based Loans to the Republic of Indonesia for the Integrated Participatory Development and Management of Irrigation Program*. Manila.

5

A black and white photograph of a dirt road with utility poles, overlaid with a blue and orange graphic containing text. The scene shows a dirt road with utility poles on the right side. In the foreground, a group of sheep and goats are walking along the road. Several men are standing on the road, some looking towards the camera. The background is slightly blurred, showing more of the road and utility poles.

**INSTITUTIONAL ISSUES
FOR DELIVERY**

Highlights

ADB has lost several agricultural subsector specialists, particularly when Strategy 2020 relegated agriculture to a noncore area. Staff skills and expertise in policy and institutional areas as well as in value chains and private sector development are of concern.

Staffing is clearly geared towards water resources specialists: 65% of present international ANRRD operational staff have water expertise and 35% have agricultural expertise.

Based on a survey conducted for the evaluation, only 16% of respondents agreed that the number and skills mix of ANRRD staff were well-aligned with ADB's ANRRD priorities.

TA and consultant resources are used to fill gaps in staff numbers and skills. Although the complexity of the sector and the limited country capacity for ANRRD is well known, making project design and supervision more challenging, little has been done to tailor and strengthen these processes. For instance, ANRRD staff remain largely headquarters-based and focused on project design, despite recognition of the need for greater supervision and implementation support.

Collaboration and/or synergy between the regional divisions and the agricultural team in PSOD has been limited.

The Rural Development and Food Security Thematic Group has an important function but only 44% of headquarters-based ANRRD staff engage frequently with the group. Most of the group's value addition comes from generating, identifying, and disseminating knowledge.

A. Overview

180. **This chapter examines the institutional arrangements has in place to deliver ANRRD results.** It assesses the adequacy of ADB's staffing and skills and reviews how staff are organized and located. It also assesses the coordination challenges and two key processes—quality assurance and support for project implementation. The assessment draws on two main sources of information: (i) historical staff information for the period 2005–2017 provided by the Budget, Personnel, and Management Systems Department and (ii) an online IED survey of ANRRD staff.¹³⁶

B. Staffing, Skills, and Organization

181. **ADB's ANRRD staff are organized in five regional department divisions and a small central unit in the Sustainable Development and Climate Change Department (SDCC).** As of July 2018, there were a total of 63 international staff assigned to the Environment, Natural Resources and Agriculture Divisions of ADB.¹³⁷ For nonsovereign operations, the Agribusiness Investment Team in PSOD has six staff. In addition to ANRRD, ADB has a substantial number of staff responsible for the environment and safeguards as well as other related specialties (e.g., climate change and social development).

182. **ADB lost a number of agriculture specialists after the agriculture portfolio began to decline in the 2000s.** This process culminated in Strategy 2020, which relegated agriculture to a noncore area. Interviews with international and national staff indicated that there are currently few technical staff with expertise in specific subsectors such as agronomy, livestock, fisheries, and forestry. For rural development, there are only two specialist staff in ADB, one focusing on rural development for transport and the other on health and rural development. The decline in staffing has been particularly significant for the Central and West Asia Department, which closed its Agriculture, Environment and Natural Resources Division in

¹³⁶ An online survey was undertaken by IED in May 2018 of 125 ANRRD staff from ADB headquarters and resident missions. Out of the 125 ANRRD staff, 68 (54.4%) responded. Three respondents did not continue the survey after providing demographic information, and a further three respondents discontinued their participation after answering the first five questions. For each of the 44 latter questions in the survey, respondents numbered no more than 62 and no fewer than 57.

¹³⁷The information obtained from the ADB Budget, Personnel, and Management Systems Department included international agriculture and natural resources specialists and national officers from the resident missions.

2009. Staff and activities from the closed division were briefly integrated into the Energy and Natural Resources Division in 2009 before the current Environment, Natural Resources, and Agriculture Division was created in 2011.

183. **ADB international staff in the ANRRD divisions are mainly water resources specialists.** In July 2018, 12 international members of staff specialized in agriculture¹³⁸ compared with 22 water specialists (Table 6), a ratio of 35:65. The Southeast Asia Department is unique in having the opposite configuration, with 60% of international staff having agriculture expertise and 40% water resources expertise. For the Pacific Department, agriculture has been assigned to the Transport, Energy, and Natural Resources Division but the department has no dedicated specialists for either agriculture or water resources, at least in terms of position titles or designations. On average, international staff in the sector have 8.1 years of experience at ADB in addition to 12.8 years of experience prior to joining ADB. As the work is led by international staff and there are fewer national staff, the focus of this analysis is on the former.

Table 6: International and National Staff with “Agriculture” or “Water Resources” in their Job Title by Department (as of July 2018)

Designation	CWRD	EARD	PARD	SARD	SDCC	SERD	Total
A. International Staff							
Agriculture-Related							
Chief of Rural Development and Food Security (Agriculture) Thematic group					1		1
Principal Natural Resources and Agriculture Specialist					1	1	2
Principal Natural Resources and Agriculture Economist						1	1
Senior Natural Resources and Agriculture Specialist		1				2	3
Senior Natural Resources and Agriculture Economist	1						1
Natural Resources and Agriculture Specialist				1	1	1	3
Natural Resources and Agriculture Economist						1	1
Subtotal (A1)	1	1	0	1	3	6	12
% of Total	25	20	0	17	33	60	35
Water-Resources-Related							
Chief of Water Sector Group					1		1
Principal Water Resources Specialist	1	1		1	1	1	5
Senior Water Resources Specialist	1	1		2	4	1	9
Water Resources Specialist	1	2		2		2	7
Subtotal (A2)	3	4	0	5	6	4	22
% of Total	75	80	0	83	67	40	65
Total (A1+A2)	4	5	0	6	9	10	34
B. National Staff							
Agriculture-Related							
Senior Project Officer (Natural Resources and Agriculture) Natural Resources and Agriculture Officer	1	1		1		2	5
Subtotal (B1)	1	1	0	1	1	2	6
% of Total	50	100	0	50	50	100	67
Water-Resources-Related							
Senior Project Officer (Water Resources)	1						1
Senior Water Resources Officer				1			1
Water Resources Officer					1		1
Subtotal (B2)	1	0	0	1	1	0	3
% of Total	50	0	0	50	50	0	33
Total (B1+B2)	2	1	0	2	2	2	9

CWRD = Central West Asia Department, EARD = East Asia Department, PARD = Pacific Department, SARD = South Asia Department, SERD = Southeast Asia Department, SDCC = Sustainable Development and Climate Change Department.

Note: Directors of divisions are not included as their expertise is distributed across all aspects of ANRRD and the environment.

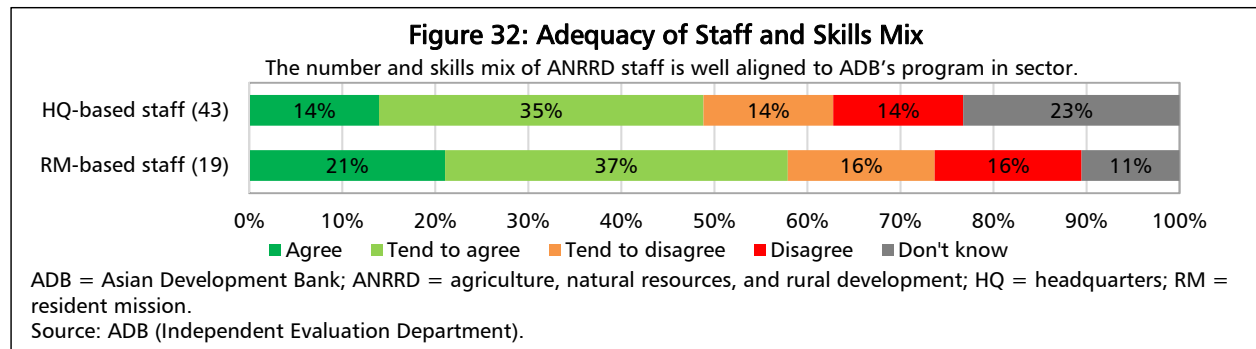
Source: Asian Development Bank (Budget, Personnel, and Management Systems Department).

184. **Most ANRRD staff work at ADB headquarters.** ADB began to locate international ANRRD staff in the field with two placements in 2009. This number had grown to eight staff in seven resident missions

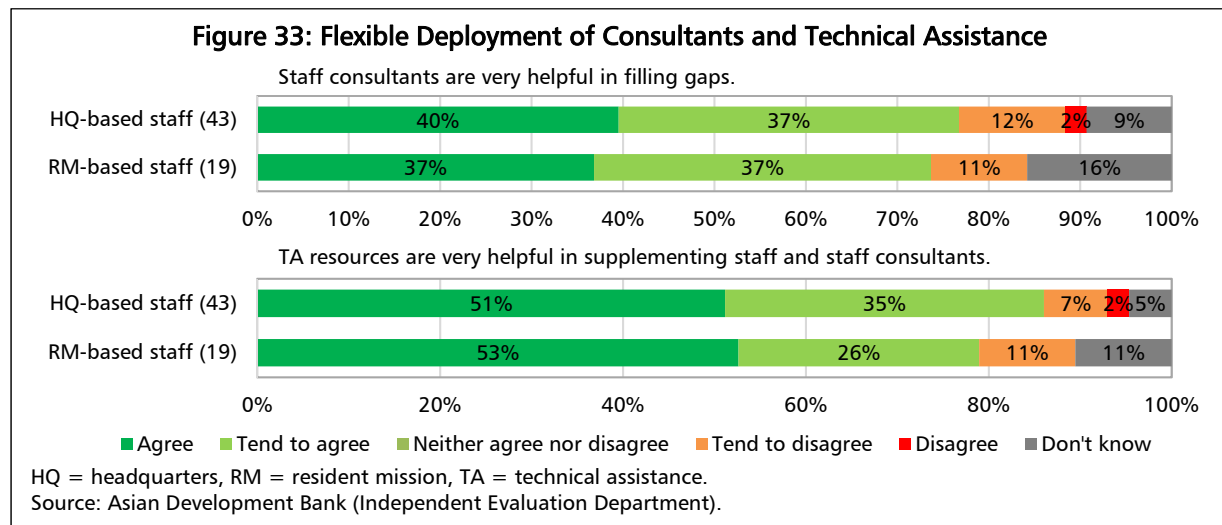
¹³⁸ As assessed by their position title or designation.

by end-2017. Notwithstanding the increase, the number remains small as a proportion of the total international staff in the sector. There has been an expansion of national staff in resident missions working on urban water, agriculture, natural resources, and safeguards but it is difficult to identify how many of these are working explicitly to support ANRRD.

185. **Skills composition is an issue.** Based on the online survey, only 16% (14% headquarters, 21% resident mission) of the survey respondents agreed that the number and skills mix of ANRRD staff were well-aligned with ADB’s program in these sectors (Figure 32). This suggests that while the number of staff is in line with that in other sectors, there is an issue with the skills composition.



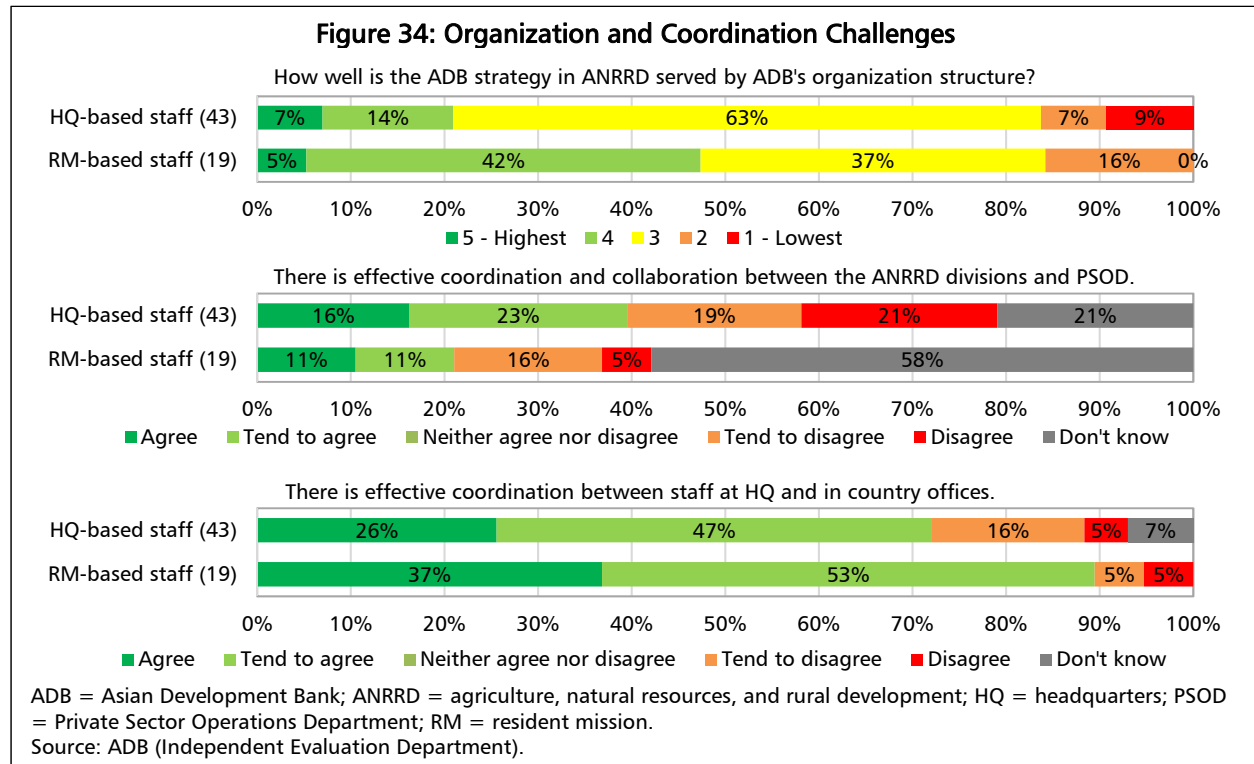
186. **The shortfall in skills is bridged through the use of consultants and TA resources.** ADB uses a flexible and responsive approach by deploying staff and TA-funded consultants to perform staff ANRRD work. Survey respondents (Figure 33) agreed that: consultants are very helpful in filling gaps (39%), and TA resources are very helpful in supplementing staff and consultants (52%). However, consultants are not well placed to carry out policy dialogue or to build and help share and/or transfer institutional knowledge in a systematic way.



C. Coordination Challenges

187. **Collaboration between the regional divisions, SDCC, and the agribusiness team in PSOD is a challenge.** The organization of staff into five regional divisions and a small core technical capacity in SDCC poses coordination and cross-learning challenges. Some 21% of headquarters staff and 47% of resident mission staff agreed that implementation of the 2015 operational plan was well served by its organizational structure. In terms of coordination, 26% of headquarters staff and 37% of resident mission

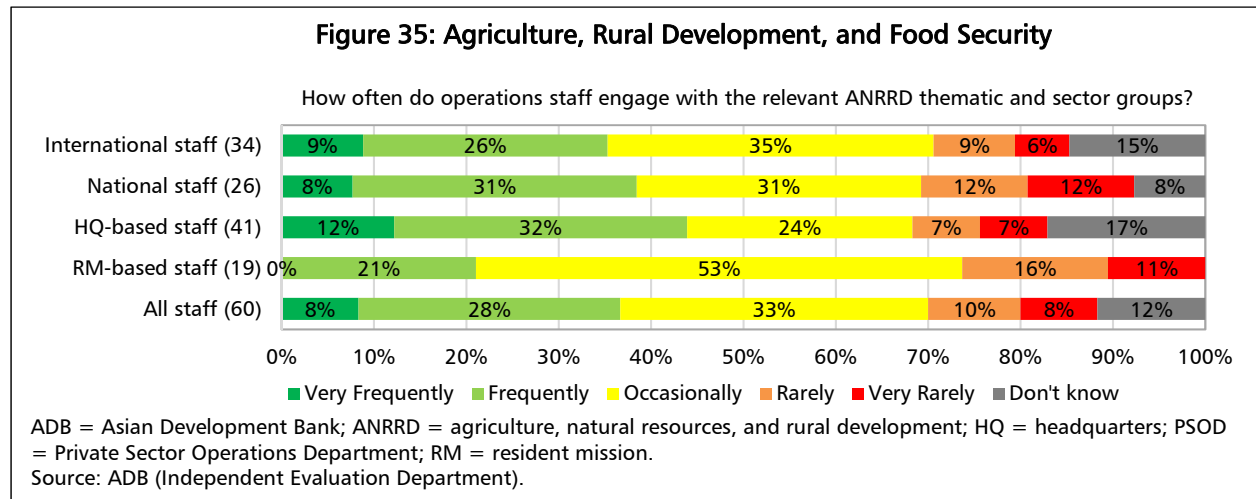
staff agreed that effective coordination between headquarters and resident mission staff was effective. Some 16% of headquarters staff and 11% of resident mission staff agreed that there was effective coordination and collaboration between the ANRRD divisions and the Private Sector Operations Department (Figure 34).



188. **The Rural Development and Food Security (Agriculture) Thematic Group provides ADB with a strategic overview, including knowledge and human resource support, in support of the 2015 operational plan.** To improve coordination and monitor implementation of the operational plan, the thematic group was mandated to provide and oversee strategic operational support, knowledge management, human resources and talent management, and partnerships and cofinancing. It is made up of agriculture, natural resources, and rural development experts from different departments of ADB, including the regional departments, PSOD, and SDCC. To facilitate knowledge sharing and innovation, two working groups have been established under the thematic group: the value chain and climate-smart agricultural working groups. The thematic group has worked in three key areas:

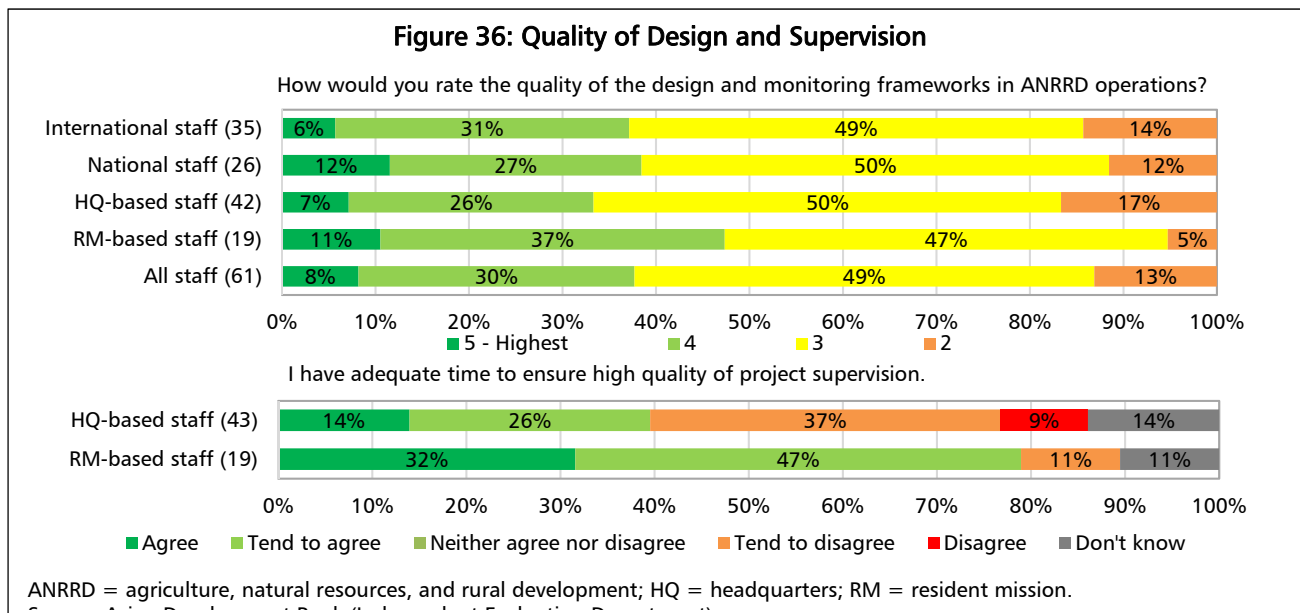
- (i) strategic operational support—improving investment quality (reviewing project proposals and CPSs, participating in project missions, and taking part in business development consultations), promoting innovations and pilot activities for pipeline development, and initiating climate finance tracking for agriculture and natural resources;
- (ii) knowledge management and sharing—organizing technical workshops and seminars (12 in 2017), producing knowledge products (five in 2017), and developing and expanding partnerships; and
- (iii) human resource and talent management and staff sharing—organizing staff training and workshops and mobilizing additional resources for TA.

189. **Staff survey results showed mixed levels of satisfaction with the Rural Development and Food Security Thematic Group.** Of the total respondents, 44% of headquarters staff and 21% of resident mission staff reported that operations staff engaged with the thematic group frequently (Figure 35). In terms of value addition, 22% of respondents agreed that the thematic group added value to the work of operational departments by providing corporate coherence in the development and implementation of sector and thematic policies and by identifying and developing new initiatives and business practices in priority areas and mainstreaming them into ADB’s operations; 23% of respondents agreed that the thematic group added value by promoting and coordinating sector and thematic knowledge generation, capture, sharing, and dissemination; while 10% of respondents (10% headquarters, 11% resident mission) agreed that the thematic group added value to the work of operational departments in terms of facilitating staff sharing and supporting talent acquisition and nurturing.



D. Quality at Entry and Supervision

190. **ADB needs to pay greater attention and devote adequate resources to assuring the quality at entry of ANRRD operations and to supervising technical issues.** Survey responses highlighted a number of issues with the quality of design and supervision. In particular, 14% of headquarters staff and 32% of resident mission staff reported having adequate time to ensure high-quality project supervision (Figure 36). Related to design quality, 33% of headquarters, and 48% of resident mission respondents rated the quality of the project DMFs satisfactory. This result is consistent with ADB’s own quality-at-entry review conducted in 2010, 2012, and 2014. Best practice includes a sharp focus on the robustness of the results (DMF) as well as an independent and rigorous review of technical content and institutional design and capacity, support for quality enhancement where needed and, accountability for clearly addressing the feedback received during the review process. Observed supervision is limited to “administration” of the ADB loan or grant, with a focus on contracting and disbursement aspects. Little attention is paid to technical issues or to providing support during implementation. This is a missed opportunity to improve project performance for achieving outcomes.



E. Summary

191. **ADB's ANRRD staff are organized in five regional department divisions, a small central unit in the SDCC, and the agribusiness unit in PSOD.** ADB lost a number of agriculture specialists after the agriculture portfolio began to decline in the 2000s and Strategy 2020's relegated agriculture to a noncore area. There are presently considerably more international water resource specialists (65%) than agricultural specialists (35%) in the regional department divisions. The total number of international agriculture and environment division staff specialized in agriculture is 12 out of 34. The majority of ANRRD international staff work at ADB headquarters with eight staff located in seven offices.

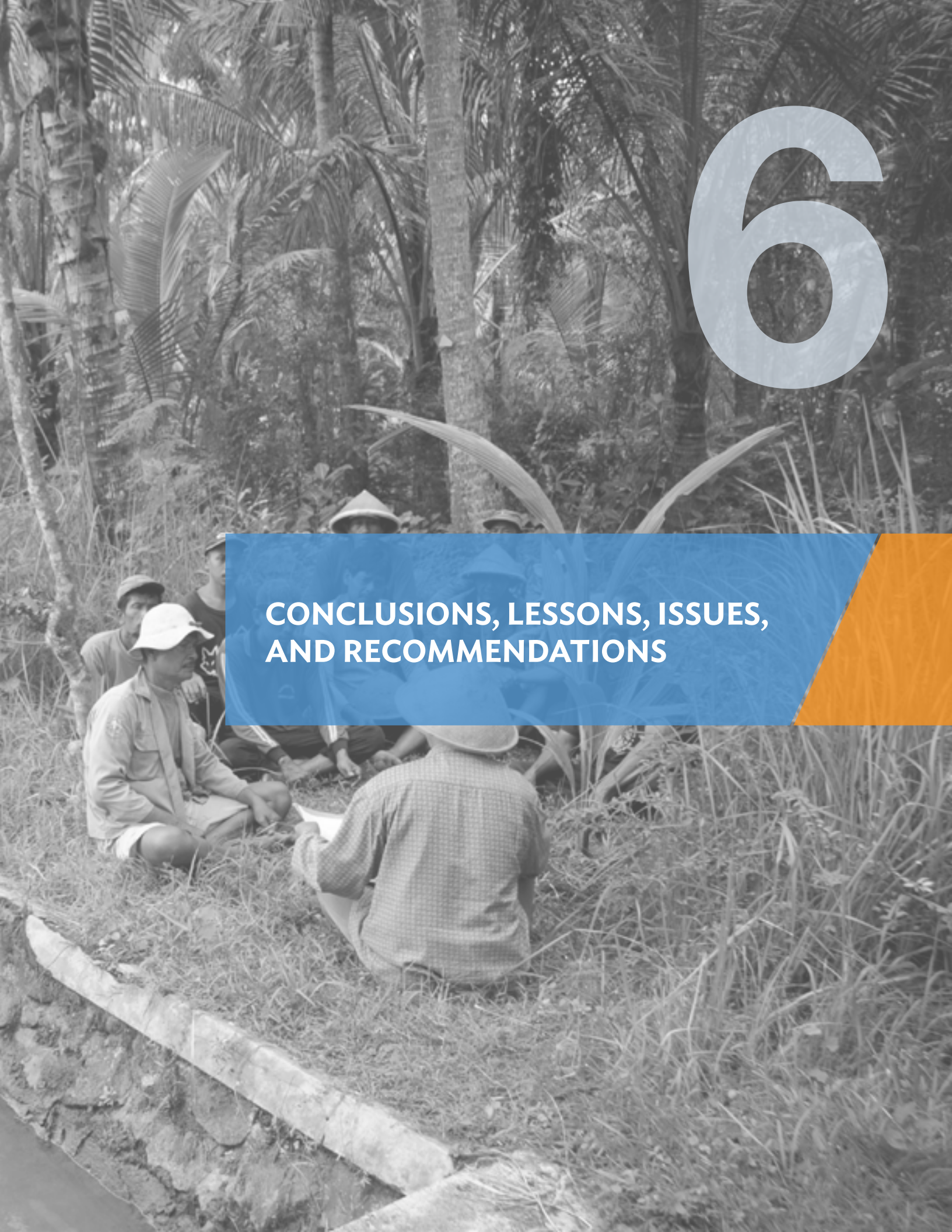
192. **ADB lacks staff with the requisite skills and there is limited coordination between and across divisions and departments.** The staff survey found that 16% of staff agreed that the number and skills mix of ANRRD staff were well-aligned with ADB's program in these sectors. The shortfall in skills is currently bridged through the use of consultants and TA resources. Collaboration across the regional divisions and with the agricultural team in PSOD appears to be limited. Survey results indicated that coordination and collaboration between the ANRRD divisions and the Private Sector Operations Department was limited and that ADB's ANRRD strategy was not well served by the organizational structure.

193. **Staff survey results showed mixed levels of satisfaction with the Rural Development and Food Security Thematic Group.** Of the total respondents, 44% of headquarters respondents reported that operations staff engaged with the thematic group frequently or very frequently. Respondents agreed that the group added the most value to the work of operations departments through knowledge generation, capture, sharing, and dissemination.

194. **ADB needs to pay greater attention and devote adequate resources to assuring the quality at entry of ANRRD operations and supervising technical issues.** Survey results indicated that there was inadequate time for project design and that the quality of the DMFs could be improved. This concern for project design is consistent with ADB reviews conducted in 2010, 2012, and 2014.

6

CONCLUSIONS, LESSONS, ISSUES, AND RECOMMENDATIONS



A. Overview

195. **This chapter presents the key conclusions and highlights the strategic, portfolio, operational and organizational issues that emerged from the evaluation.** It provides lessons learned from the assessment and offers recommendations.

1. ADB's Contribution to Sustainable Agriculture and Food Security

196. **ADB's overall support for sustainable agriculture and food security has been significant in terms of lending volume, but modest on results.** Strategically, ADB de-emphasized agriculture during the early and mid-2000s, which left it unprepared to respond to the 2007–2008 food price crisis. One regional department, Central and West Asia Department, closed its agriculture and environment division and sector expertise was gradually lost across ADB. Results in terms of the theory of change's outcome indicators¹³⁹ have been less than optimal, although some improvement has been seen. ADB's work has been focused on irrigation and other water-related infrastructure. While these make an essential contribution, there are other key inputs for agriculture. If ADB is to provide more effective support for sustainable agriculture and food security, other subsectors need to be better supported. Key subsectors for the region and its food security, including fisheries and livestock, have received minimal support. An explicit focus on private sector development and large-scale private sector operations is growing, but this is only in its infancy, as is associated recognition of the need to expand agricultural value chain work.

197. **Strategy 2020 was less than relevant for guiding ANRRD.** The downgrading of agriculture to a noncore sector in Strategy 2020 immediately preceded the 2007–2008 food price crisis. ADB was slow to recognize the growing importance of focusing on issues beyond productivity, such as those related to agriculture value chains and the private sector. Key policies for agriculture (e.g., the fisheries policy) lapsed or were retired.

198. **Since the 2007–2008 food price crisis, ADB has been rebuilding its support for agriculture and food security, particularly by clarifying its strategy.** ADB responded positively to the crisis, although with a delay, by approving the Operational Plan for Sustainable Food Security in 2009. While this offered only a broad focus on food security with little specificity, it played an important role by underscoring ADB's commitment to the sector within the framework of Strategy 2020. It also clearly recognized that, in addition to agriculture, other sectors played a role in addressing food security concerns. The second Operational Plan for Agriculture and Natural Resources in 2015 gave more focus to agriculture and limited ADB's areas of engagement to the subsectors where ADB was already working, which were mainly infrastructure-related. This limited focus diminished ADB's potential to address critical issues (e.g., value chain development).

199. **Half of the CPSs issued since 2005 addressed agriculture, particularly in relation to infrastructure.** In terms of operational plan priorities, the CPSs were generally focused on agricultural productivity, primarily through water-related infrastructure, climate resilience, and/or natural resource management, and connectivity. However, there has been a limited focus on food losses, food safety, and nutrition. For example, malnutrition was highlighted by the Ending Rural Hunger project as a serious issue in several ADB countries, notably in South Asia and Southeast Asia, and yet only two CPSs addressed this topic. Private sector development is another area that needs more explicit discussion.

200. **The \$2 billion annual approval target for food security has been useful in raising the profile of ANRRD.** The target increased ADB's attention on the work of the agriculture and environment divisions. Today almost the entire target can be met from the ANRRD portfolio. The expanding volume of resources

¹³⁹ (i) Increased agriculture and water productivity; (ii) fully integrated value chains; (iii) improved smallholder livelihoods (including gender equity); and (iv) enhanced sustainability and resilience of food systems and natural resources.

for ANRRD has reinforced the prevalence of water-related infrastructure projects in part because they can be scaled-up and can absorb substantial resources while reducing the overall number of projects. The dominance of these projects can be partially explained by the greater number of water resources staff when compared to those with agricultural backgrounds.

201. **Performance improved significantly over the evaluation period (2005–2017).** In the mid-2000s, the success rate for ANRRD projects was significantly below the ADB average. Since then, the success rate has improved and is now at par with the ADB average at 65%, although this is still well below the 80% corporate target. Sustainability remains weak, which is often due to poor O&M of irrigation rehabilitation and other institutional and capacity constraints.

202. **ADB has made substantial and important investments in irrigation and other infrastructure but the performance of irrigation, the largest subsector, has been poor.** ADB's support for enhanced productivity through irrigation and related rural infrastructure has made a positive contribution to the sector. By volume, over 70% of ADB resources supported water-related infrastructure, leaving fewer resources to support other ANRRD activities (e.g., on-farm improvements). ADB's irrigation projects performed poorly; better outcomes were achieved by other water-related infrastructure projects and these contributed moderately well to productivity and water resource management and climate resilience. Rural flood protection, for example, had a 100% success rate.

203. **ADB will need to improve the performance of the irrigation subsector.** Given the relatively poor performance of the irrigation subsector, its critical importance to the sector and the trend towards substantially more irrigation projects, there is a risk that the improving trend in ANRRD performance may be reversed. ADB needs to take action to ensure irrigation performance and particularly the sustainability of project results. The low performance for irrigation has limited ADB's contribution to productivity results.

204. **As ADB's support for water-related infrastructure has increased, its support for agriculture has declined substantially.** The agriculture subsector grouping includes agricultural policy, institutional and capacity development, agriculture research and application, agriculture production, agro-industry, marketing, and trade and subsectors such as fisheries, forestry, and livestock. Notwithstanding the importance of these subsectors, over the evaluation period the portion of resources dedicated to them fell from about 47% during 2005–2009 to less than 10% in 2014–2017.

205. **ADB has had limited results to date from a small but growing portfolio supporting value chain development and agribusiness development and operations.** The entry point for sovereign projects has been through infrastructure investments to improve market linkages, although, increasingly, projects have introduced value chain activities. PSOD began its agribusiness investments in 2012 and established an agribusiness investment team in 2015, which has begun supporting value chains and agribusinesses. To date, there have been few public–private partnerships or private sector partnerships through sovereign operations. There have been no joint sovereign and nonsovereign projects in agriculture.

206. **ANRRD projects can effectively promote inclusive growth and gender equity.** Agriculture works directly with and can target selected beneficiaries. About 59% of ANRRD projects targeted beneficiaries directly. Many of the community-based projects, although small and limited in number, have successfully reached their targeted beneficiaries and performed well overall. The infrastructure-related projects have a more indirect benefit, particularly for gender equity. As most ADB countries are transforming, the role of agriculture will be evolving and ADB needs to pay more attention to off-farm activities in rural areas. This will have implications for ADB's approach to gender and inclusiveness.

207. **Policy dialogue, innovation and partnership have not been consistent or well aligned with investment lending.** Policy dialogue with government and other stakeholders has been limited as international staff are largely based at ADB headquarters and are focused primarily on investment loan

processing. Partnerships are often viewed in term of cofinancing rather than knowledge. However, there are excellent examples of ADB engaging in these areas. TA has been used effectively as an entry point to support innovation and emerging areas. It also supports ADB's regional cooperation initiatives and regional research. However, many TA outputs are not clearly aligned with or sequenced to support ADB's ANRRD investments.

2. Importance of Continued Support for Agriculture in the Face of Evolving Challenges

208. **Agriculture has played a critical role in the growth and transformation of countries in Asia and the Pacific and will remain important for further growth, poverty reduction and delivery of the Sustainable Development Goals.** As Asian economies have grown, gains in agriculture have supported urbanization and reduced poverty, food insecurity, and malnutrition. Although agriculture provides a declining share of gross domestic product, it employs many of the region's poorest people and addresses poverty and food security, which remain a serious problem in parts of the region. Many of the 500 million undernourished people in the region are rural poor dependent on agriculture for their livelihoods. The difficulty and importance of developing the sector and addressing these issues should not be underestimated. Agriculture is uniquely placed to help deliver multiple SDGs.¹⁴⁰

209. **Agricultural growth and productivity increases are a priority for the region as the sector faces both persisting and new challenges.** More food will be needed to support population growth. Existing natural resources (e.g., land and water) are limited, meaning that significant advances in efficiency and productivity are needed. Changing diets, food safety demands, climate change effects, and competition with other sectors for resources pose additional pressures and constraints.

210. **Climate change is significantly impacting agriculture, natural resources and rural development in the region and the sector has a major role to play in improving resilience.** Given that agriculture is the dominant user of water across the region and that water-related stresses, including floods and droughts, are among the most significant impacts of increasing climate variability and change, it is paramount for ADB investments to support greater resilience. The ADB corporate target for climate adaptation of \$2 billion annual approvals by 2020 will be challenging and Strategy 2030 has set a far more ambitious target of \$80 billion from 2019 to 2030. River basin and flood risk management approaches through ANRRD investments will also lead to wider benefits in downstream urban and energy infrastructure.

211. **As countries develop, rural–urban links evolve, become more complex, and present challenges and opportunities.** Consumer preferences affect value chains and engage actors beyond those in agricultural production and public entities; the private sector is central to these value chains. Furthermore, urbanization and off-farm employment change are changing the nature of farming as women and the elderly are left in rural areas. These changes present opportunities for the region to support a more holistic approach to agriculture, leading to a more inclusive and resilient sector and continued growth in the region.

212. **Countries need to establish a conducive policy environment for both sovereign and nonsovereign operations if they are to respond effectively to these challenges.** Tariffs and subsidies can restrict trade and distort production. Achieving the poverty reduction, food security, and other agriculture-related SDGs will require huge resources, most of which will have to come from the private sector. A conducive policy environment is necessary to leverage additional resources, encourage private sector engagement, and to guide public investments in research and market infrastructure. Appropriate policies can encourage the introduction of more efficient and environmentally sound technologies and practices. Harmonized policies across the region will benefit both food importing and exporting countries.

¹⁴⁰ FAO. 2018. *Transforming Food and Agriculture to Achieve the SDGs: 20 Interconnected Actions to Guide Decision-Makers*. Rome.

B. Lessons

213. **Support for basic infrastructure alone is not sufficient to address the complex and evolving challenges for agriculture and food security in Asia and the Pacific.** ADB is reengaging in the sector at a critical time for agriculture in the region, which presents tremendous opportunities and challenges. Food production in Asia has managed to keep ahead of demographic changes but malnutrition and poor food quality persist. Economic development has significantly impacted dietary and quality preferences in many countries. Innovative approaches will be required to address the greater demand for animal protein as well as concerns over nutrition, food safety, and food losses. ADB's traditional assistance for water-related infrastructure has been a fundamental input to agricultural production and food security. However, support to the sector now needs to be viewed more holistically and to recognize issues beyond production. As agricultural systems are increasingly centered on value chains, private sector actors will take on greater influence and responsibility, which will have implications for ADB's approach to ANRRD.

214. **Responsiveness is better when strategies and investments reflect the gaps and needs in agriculture, natural resources, and rural development in Asia and the Pacific.** Natural resources, climate, technology, infrastructure, institutional capacity, political economy, the private sector enabling environment, and agricultural priorities all vary across the region. Such characteristics play an important role in determining a country's needs and gaps for the agricultural sector. At the country level, the ANRRD sector requires comprehensive upfront diagnostic work, including policy dialogue, to capture this heterogeneity and formulate more nuanced responses through CPSs and project development. At the regional level, public goods—such as biodiversity, water resources and clean air—will also require analysis, regional strategies, and projects. Strengthening ADB's upfront diagnostic work will enhance its strategic relevance and improve the likelihood for successful outcomes.

215. **Recognition of weak institutional capacity, difficult context, and complexity of the sector in planning and design of ANRRD projects improves performance.** ADB divides the ANRRD sector into 17 subsectors and often works with executing and implementing agencies with limited capacity. Projects are often undertaken in remote areas. The ANRRD sector operates close to the beneficiaries, either directly through improved livelihood programs or indirectly through ecosystem support and provision of services. Investments can comprise multiple subprojects spread across a geographic area, with consequent challenges for monitoring and supervision. Further the sector is often characterized by weak institutions and low capacity as well as issues around land titling and access to finance, which present additional challenges. This complexity has an impact on the skill sets required to formulate and implement effective responses, the effort needed to build the capacity of institutions, and the time needed for benefits to fully accrue to the target beneficiaries. ADB needs to develop strategies and investments that adequately address this complexity to ensure effective design, implementation and ultimately performance.

216. **Strategic partnerships to complement ADB's comparative advantage in infrastructure development can help maximize development outcomes.** ADB has a comparative advantage in infrastructure development. However, to address the complexity of the sector and to maximize development outcomes, strategic partnerships with other development agencies and recognized centers of excellence are needed to complement ADB's strengths, particularly in the areas of smallholder support, value chains, and agribusiness development. Such partnerships should not be seen as a reason to limit ADB's engagement in infrastructure; rather, such partnerships will provide ADB with an opportunity to strengthen its operational effectiveness, knowledge development, and skills development.

217. **The use of remote sensing and other space-based technologies can support better tracking of expected outcomes.** The ANRRD sector often involves work in remote areas with national agencies that have limited institutional capacity. This poses challenges for diagnostic work in CPS development, project preparation, and implementation. Space-based technologies can supplement ground-level analysis, establish baselines, set targets, and monitor and evaluate outcomes. Projects with spatially-related

outcomes, such as improved crop yields, increased flood protected area, and increased wetland area development, lend themselves readily to the application of such technologies.

C. Issues

1. External

218. **Numerous external factors, such as trade policy, access to finance, and competing users of natural resources, negatively impact and add to the risk and complexity of agricultural investments.** For example, agriculture must compete with other water users across a river basin, all of which, including agriculture, may impair the quality and quantity of this resource for downstream use. Growing urbanization and industry can degrade soil and air quality, affecting agricultural yields and food quality. Transport, energy, and finance all provide essential infrastructure and support services for agriculture, and the private sector plays an increasingly central role in these. ANRRD investments must be designed to take account of the importance of related sectors and the policies that guide them, so that negative impacts can be mitigated and synergies identified. Strategy 2030 designated rural development and food security as priority area, which provides an opportunity to coordinate ADB's interventions across related sectors and policies more effectively.

219. **Climate change impacts are highly detrimental for ANRRD given the importance of climatic conditions for agriculture and the natural resource base.** Agriculture is the predominant user of water across the region and water-related stresses, including floods and droughts, are among the most significant impacts of increasing climate variability and change. Climate affects agricultural outputs directly as well as the natural resources and ecosystems upon which agriculture depends. Therefore, it is paramount that ADB investments support greater resilience to climate change. For adaptation financing, ANRRD contributed the highest share vis-à-vis the other sectors, over the period 2012–2017; however, a significant contribution from ANRRD will be required to meet the ADB 2030 corporate targets for climate adaptation. River basin, flood risk management and other ecosystem-based approaches through ANRRD investments will also bring wider benefits to downstream urban and energy infrastructure.

2. Internal

220. **ADB's operational plans do not provide sufficient strategic guidance and clarity.** The increased emphasis on agriculture after the 2008 crisis began with the Operational Plan for Sustainable Food Security in 2009 and continued with the Midterm Review of Strategy 2020, which recognized the sector's role in reducing poverty and promoting inclusive growth. A new Operational Plan for Agriculture and Natural Resources was adopted in 2015, providing greater clarity and a stronger focus on agriculture. However, both operational plans were limited in terms of the guidance they provided to agricultural operations, particularly with regard to value chains, private sector development, and the evaluability of operations. The operational plans lacked the detail that was provided by the former policies for specific subsectors (e.g., for fisheries and forestry). Nevertheless, staff working in the agriculture and natural resource divisions appreciate the operational plans because they give greater visibility, credibility, and recognition to their work. The priorities of the 2015 operational plan were included in Strategy 2030, under the rural development and food security priority area. This priority area will need to be guided by agriculture as well as other relevant sectors in its priority area plan. There may therefore need to be a new plan for both the priority area and the sector.

221. **ADB has not provided sufficient support for agricultural policies or for engagement with the private sector.** Basic infrastructure has been the principal focus of ADB support and ADB has not participated consistently in sector policy dialogue. Most ANRRD interventions were implemented through the public sector, particularly water ministries. The nascent, but growing, agribusiness portfolio is a good start, but such investments need to be ramped up, integrated more closely with public policy and other

sectoral interventions, and coordinated with ADB-supported sovereign activities in the area. ADB needs to promote shared public and private sector diagnostic work and complementary project development and implementation support.

3. Internal: Portfolio and Operations

222. **Although ADB has been meeting its \$2 billion annual approval target for ANRRD and food security, an ADB-wide approach is lacking.** As Strategy 2030 has committed ADB to supporting rural development and food security, there is now an opportunity to clarify crosscutting themes and better explain their relationship to agriculture and other sectors. Other institutions, such as Inter-American Development Bank, have found it useful to complement strategies with individual guidance documents. Similarly, the ANRRD project classification should be rationalized. The water supply and sanitation projects that are currently counted as part of the sector are at best outliers. The \$2 billion target for food security was useful in that it initially tracked both ANRRD projects and non-ANRRD projects. However, ADB can now meet the target solely from the ANRRD portfolio. The tracking of the non-ANRRD projects has been inconsistent and, in some cases, their contribution to food security was very indirect. Rural finance, including SME support, should be better tracked as it is crucial for agriculture and rural development. An ADB-wide approach will be required to track multiple sectoral contributions to the Strategy 2030 priority area of rural development and food security.

223. **The ADB portfolio in many countries is not fully responsive to the range of needs and the application of innovation has been limited.** The largest share of ADB ANRRD investment goes to the PRC, where the ADB portfolio is diversified. Elsewhere ADB's approach has a narrower focus. Other development partners provide their greatest support to South Asian countries, given the prevalence of poverty, food insecurity, and malnutrition there. ADB has virtually no ANRRD projects in the Pacific. A rationale for working in the PRC is that the environmental challenges are great and working in this sector can serve to support demonstration and innovation. Innovation and demonstration, particularly with regard to environmental management concerns, is less prevalent in the rest of the ANRRD portfolio and, even in the PRC, it does not match the ambition of the operational plan or country needs. ADB does not have a coherent approach to innovation that would allow for replication and upscaling.

4. Internal: Organizational

224. **ADB's staff composition for sustainable agriculture and food security has not been sufficient to match the growing ambition of the operational plans and Strategy 2030.** The scaling back of agriculture as a strategic focus led to fewer agriculture specialists and more water resource specialists. While both are critical to the sector, this has implications for the future as there is demand for ADB support in more subsectors (e.g., livestock and fisheries) as well as greater need for agricultural value chain and policy work. Currently, the shortfall in skills is bridged through the use of consultants and TA resources, which is a flexible and responsive approach but may limit the potential for institutional development and policy dialogue. A different approach may be needed.

225. **ADB does not have sufficient cross-departmental or cross-divisional cooperation to deliver sustainable agriculture and food security.** ADB needs to do more to coordinate the ANRRD staff in the five regional department divisions, the small central unit in the SDCC, and the agribusiness unit in PSOD. Greater input is also needed from the public financial management divisions. Similarly, within SDCC, there is scope for greater cooperation between relevant thematic and sector groups, including Water Sector Group, Environment Thematic Group, Urban Sector Group and the Finance Sector Group. The ANRRD Thematic Group, on its own, cannot deliver the Strategy 2030 rural development and food security priority area. Under Strategy 2030, ANRRD will be only one sector contributing to the rural development and food security priority area. A more specific focus on agriculture, its various subsectors, including agribusiness and value chains and policy, would guide the sector in supporting Strategy 2030. The working groups on value chains and climate-smart agriculture need to be strengthened, formalized,

and incentivized so they can provide greater innovation and knowledge sharing. The thematic group is in a good position to coordinate wider support for agriculture, particularly through the water, finance, and private sector groups. Outside ADB, the thematic group should foster new partnerships to bring in greater knowledge, expertise and innovation. Indicators and targets for this should be included in any revision to the operational plan.

D. Recommendations

226. **ADB has an opportunity to become a leader in the region for ANRRD.** ADB is rapidly becoming the largest multilateral development partner in terms of the volume of resources it provides for agriculture in Asia and the Pacific. In addition to leading in financial resources, ADB should also aspire to lead in terms of setting priorities, policy dialogue, convening partners, and leveraging resources.

227. **The recommendations below respond to the main questions set out for the sector-wide evaluation.** These questions covered the relevance of ADB strategies, the effectiveness of ADB operations, and the appropriateness of ADB's approach, delivery, and resources to meeting its ANRRD objectives. ADB should seek to position itself as a leader in the region for ANRRD. To do so, ADB should:

Strategic

1. **Ensure the new operational priority plan for the rural development and food security priority area of Strategy 2030 recognizes the need for multisector solutions and is underpinned by a revised sector framework for agriculture and natural resources, and a revised sector framework for water, with more detailed guidance and a refined project classification.** Distinct and differentiated guidance is needed both for the rural development and food security priority area and for the ANRRD sector. The priority area plan developed under Strategy 2030 should be supplemented by a revised sector operational plan for the agriculture and natural resources sector as well as by guidance notes on specific ANRRD topics.
 - (i) **The operational priority plan should distinguish the roles of the agriculture sector and other sectors in supporting the priority themes of rural development and food security.** The agriculture sector is central but the plan should also articulate how the other main sectors (finance, public sector management, private sector operations, and water) should contribute. The revised corporate target for food security needs to be revised so it can track both agricultural and nonagricultural contributions more precisely.
 - (ii) **A new sector framework is needed for agriculture and natural resources to replace the 2015 ANRRD Operational Plan.** A new sector framework for ANR is needed to support the rural development and food security and other (e.g., climate change) relevant operational priority area plans and should complement the planned water sector framework. The ANR sector framework should build on 2015 ANRRD Plan and (a) recognize the importance of sector diagnostics and subsequent policy and institutional support; (b) sharpen the focus of ADB support and taking it beyond infrastructure so it also covers agricultural value chains, food safety, nutrition, and private sector development; (c) enhance engagement regionally (e.g., GMS and the Pacific); (d) build more effective complementary partnerships; and (e) provide clearer operational guidance and develop stronger results frameworks at both the operational plan and individual project levels; and (f) promote wider use and uptake by ADB and borrowers of remote sensing technologies for diagnostic work, establishment of baselines, and monitoring and evaluation of outcomes.
 - (iii) **Specific operational guidance (e.g., tool kits and good practice notes) should be developed for areas of increasing importance (e.g., the value chain and private sector**

development) and neglected subsectors and regions (e.g., fisheries and the Pacific). Additional guidance notes should identify and promote good practice and support project design and implementation. These notes should cover key themes, subsectors, and areas of expected growth (e.g., agriculture value chains, climate change adaptation, livestock and fisheries). Guidance notes should be developed for agribusiness development and policy reform. Achieving ANRRD and food security objectives requires multisectoral projects and linkages, which adds to the complexity and difficulty of working in a sector that is characterized by remote locations and institutions with often limited skills and capacity.

- (iv) **The project classification system should be revised.** This will allow agriculture's contribution to rural development and food security targets to be more accurately tracked. ANRRD currently has 17 subsectors, some of which are only marginally related to agriculture (e.g., sanitation). At the same time, the 17 subsectors do not comprehensively capture support for rural development. In revising the classification, rural development should be taken out of the project classification title.
2. **Promote more robust sector diagnostics, through increased technical assistance, to strengthen project pipelines and country partnership strategies that can deliver the Strategy 2030 rural development and food security priority area objectives.** ADB can enhance its country programs by (i) investing in country sector diagnostic work to identify constraints and opportunities, particularly for value chain development and cross-cutting themes such as country water assessments; (ii) identifying strategic uses of TA, particularly with regard to policy and regulatory reform; (iii) extending investments beyond infrastructure to incorporate a greater focus on agricultural production and productivity and value chains as well as on off-farm activities; and (iv) developing a greater role for nonsovereign operations and integrating them more effectively into country programs and in coordination with sovereign agricultural projects.

Portfolio and Operations

3. **Increase the attention paid to agricultural activities, policy and institutional reforms, and the private sector to address key constraints on outcomes.** Water is an essential input, particularly for crop-based agriculture, but ADB needs to pay attention to activities other than irrigation. More work across the entire agricultural value chain is needed to support rural populations to grow, process, and market crops in response to market needs. The ANRRD sector divisions should do more to coordinate and to influence such financial inputs as microcredit, SME finance, and crop insurance. Expanded programs are also needed to support on-farm activities and to introduce new practices and technologies. ADB has several good examples of using TA to these ends but a more systematic approach is needed so ADB can influence policy and strengthen institutions, so they can provide needed services such as grades and standards, food safety, and trade (including regional and subregional approaches). In addition, subsectors such as, livestock, fisheries, and forestry, that ADB moved out of in the past, are important for the region and may offer new opportunities. Related to this, ADB needs to better capture and integrate its important non-ANRRD work (e.g., rural finance, SMEs) into its ANRRD support.
4. **For expanding areas of work (e.g., value chains) and core work needing improvement (e.g., irrigation), strengthen up-front diagnostic work, quality-at-entry processes, and supervision for better performance, particularly sustainability, and results at the project level.** The evaluation identified a number of issues affecting project performance, particularly related to sustainability and irrigation, that should be taken into consideration during this process. Addressing these issues, however, will require a greater focus on quality at entry, delivery of outcomes and on addressing institutional and capacity constraints during

project supervision and implementation support missions. The use of remote sensing and other technologies should be mainstreamed to support this diagnostic work. ANRRD projects are often ambitious. They are frequently situated in remote and geographically dispersed locations, supported by weak ministries and/or implementing agencies, and tasked with administering activities affecting a large number of beneficiaries. Greater supervision and implementation support that goes well beyond contracting and disbursement aspects would give these projects a better chance of fully meeting their objectives. More attention to implementation support can already begin with the ongoing portfolio.

5. **Enhance support for agricultural value chains, through a One ADB approach that articulates collaboration between sovereign and nonsovereign operations.** Mechanisms and incentives are needed to support cross-departmental project design and implementation support. Collaborative project development and supervision by staff working on sovereign and nonsovereign value chain projects is recommended, since all such projects will have some combination of public sector, private sector, and farmer elements. On the nonsovereign operations side, there is a particular need to increase the agribusiness expertise available for implementation support. Government policy is important to all such operations. Analyzing the value chain to be supported should be at the core of all such operations, whether sovereign or nonsovereign. Implementation support by ADB will be important for both sovereign and nonsovereign value chain operations. This could be facilitated by having some joint operations, as is now done by the World Bank and the International Finance Corporation. Knowledge sharing with other lending and donor institutions, including IFAD which has more experience with value chains, is recommended. This approach will both strengthen projects and increase ADB skills related to agriculture and agribusiness development.
6. **Maintain attention and improve performance of investments in water infrastructure, where ADB has a comparative advantage, and expand focus on broader water resource management and climate actions.** With competition from other sectors and climate variability ensuring water availability is crucial for agriculture. ADB's work on water resources management and irrigation is a key entry point for addressing wider basin issues, which should be considered more systematically. Climate change impacts on water will be amongst the most significant for the region, and appropriate adaptation features should be mainstreamed to improve resilience of the built assets. The historically poor performance of irrigation needs significant improvement given its growing share of the portfolio and needs concerted attention to improve performance. Better outcomes can be achieved with greater attention to activities that are complementary to infrastructure investments. Similarly, improved sustainability needs a more serious commitment to associated with institutional capacity, policy and operation and maintenance. Monitoring the efficacy of on-going and future investments that seek to address these historical performance issues, is needed for potential replication and scaling up.

Organization for Delivery

7. **Increase ADB's expertise and strengthen the ANRRD staff skills mix.** The breadth of agricultural staff skills declined as ADB moved away from agriculture during the early and mid-2000s, resulting in a core sectoral expertise concentrated on water and irrigation. As ADB is refocusing on ANRRD, the volume of lending is growing, and the sector needs additional staff support. ADB should seek to acquire a more diverse skill set including policy and institutional analysis, as well as specialists in agriculture, rural development, value chain, private sector development, and agribusiness.

8. **Expand collaboration and partnerships with recognized centers of excellence to complement current staff resources and supplement skill shortages.** Augment ADB infrastructure expertise with complementary strategic partnerships for smallholder support, value chains, and agribusiness development. For overall sector knowledge, ADB should further strengthen its partnership with the international research centers of the Consultative Group on International Agricultural Research. Operationally, ADB should consider strengthening its engagement with relevant development partners and organizations. In the case of multilateral or bilateral institutions, this could include, for example, partnering and seconding staff. The location of IFAD staff within ADB could be the starting point for a more strategic partnership, considering, for example, participation by the IFAD technical staff in the ANRRD thematic group.



APPENDICES



APPENDIX 1: METHODOLOGY

A. Scope of the Evaluation

1. The overall framework and methodology for the evaluation of the support of Asian Development Bank (ADB) for the agriculture, natural resources, and rural development (ANRRD) was established in the evaluation approach paper that was approved in February 2018.¹ The evaluation covered the period 2005–2017. This 13-year period was chosen to illustrate trends in ADB’s support. It also allowed comparison across three 4-year periods (before the adoption of Strategy 2020, the transition period for Strategy 2020, and after Strategy 2020). From 2005 to 2009, the evaluation considered only those projects classified as agriculture. After 2009, when ADB began tracking the \$2 billion annual approval target for food security, the evaluation considered both agriculture and food security projects. For the period after Strategy 2020 and the setting of the \$2 billion target, the evaluation assessed the design and monitoring framework indicators of each project to ascertain whether they directly contributed to food security. The evaluation team also examined the non-ANRRD food security portfolio to determine the extent and nature of projects’ support for food security. The evaluation addressed the key questions and the key outcome indicators stipulated in the theory of change through a strategic review, a portfolio, performance and results review, and an institutional review.

B. Strategic Review

2. The evaluation reviewed ADB institutional documents related to ANRRD. These included ADB strategies, policies, country partnership strategies, operational plans and guidelines, related knowledge products and publications, sector and country assessments, and evaluations.

3. **Review of ADB strategies.** The evaluation examined the Poverty Reduction Strategy, approved in 1999; the Long-Term Strategic Framework, approved in 2001; Strategy 2020, approved in 2008; and Strategy 2030, approved in 2018. The evaluation examined how ADB has been positioned to support agriculture and natural resources in line with the country and regional priorities as spelled out in the different strategies.

4. **Review of operational plans.** The evaluation reviewed the Operational Plan for Sustainable Food Security, 2009 and the Operational Plan for Agriculture and Natural Resources, 2015. The evaluation assessed whether guidance provided in the operational plans was sufficient for formulating agriculture and natural resource support in the region along the priority areas of productivity, connectivity, food safety and nutrition, and natural resource management and climate change.

5. **Review of country partnership strategies.** Country strategies before and after Strategy 2020 were examined in terms of their analysis of agriculture, the relevance of the strategy to country agricultural needs, and whether they provided sufficient guidance for the subsequent portfolio. The evaluation reviewed 62 strategies from the 35 ADB developing member countries. The country strategies were reviewed for their consistency with the priorities set out in the 2009 and 2015 operational plans. The assessment also covered how well country strategies and pipeline development had responded to diverse and evolving country challenges and needs in issues such as climate change and agribusiness and value-chains, smallholder farmer, agriculture support and services (i.e., extension, research, infrastructure) and gender equity.

¹ Independent Evaluation Department. 2018. *Evaluation Approach: Sector-wide Evaluation: ADB’s Support for the Agriculture, Natural Resources, and Rural Development Sector*. Manila: ADB. Available: <https://www.adb.org/documents/sector-wide-evaluation-adb-s-support-agriculture-natural-resources-and-rural-development>

C. Portfolio, Performance, and Results Review

1. Portfolio Review

6. A significant portion of the evaluation's assessments was based on the review of the portfolio. The portfolio review included all ANRRD operations approved from 2005 to 2017. The evaluation assessed the level of support over time and identified some of the main trends by:

- (i) **Subsector.** The 17 ANRRD subsectors were classified into five major groups.
- (ii) **Country.** All 62 ADB developing member countries receiving ANRRD support were covered.
- (iii) **Region.** All five ADB regions were covered.
- (iv) **Modality.** Project loans, technical assistance (including regional technical assistance), policy-based lending, multitranches financing facilities, results-based lending, and nonsovereign operations were covered.

7. In addition to the core ANRRD portfolio, the evaluation also reviewed the annual \$2 billion food security lending from 2009 to 2017, which included food security related projects outside the ANRRD sector.

8. **Review of reports and recommendations of the President.** The review assessed the quality of reports and recommendations of the President in the approved portfolio to consider how well they aligned with current needs and to identify any new or potentially innovative approaches that could be scaled up in the future.

9. **Country case studies and regional studies.** As a complement to the portfolio review, the evaluation carried out country missions in selected developing member countries in March and April 2018. The country missions carried out meetings with the executing agencies at the national level and made field visits to selected project sites. The objective of the country studies was to confirm the relevance of ADB's agricultural focus and to gather a range of implementation experiences covering the four key outcome indicators in the theory of change. The selected countries were: Bangladesh, Cambodia, People's Republic of China (PRC), and Tajikistan. The selection of countries was based on (i) portfolio volume; (ii) representativeness across the ADB regions and lending terms; (iii) whether country operations reflected a cross section of ANRRD subsectors, including those of the Private Sector Operations Department; and (iv) opportunities for lessons, innovations, and best practices. The countries selected were regarded as representative of their regions.

10. In South Asia, Bangladesh had the largest agriculture portfolio in the region. It was focused on water (flood protection, irrigation, and water resource management), the core of ADB's ANRRD work. During the evaluation mission in April 2018, the evaluation team met with central government agencies, development partners, and representatives of the private sector. The team also carried out project site visits and met with implementing agencies and beneficiaries of the Southwest Area Integrated Water Resources Planning and Management Project,² the Participatory Small-Scale Water Resources Sector Project,³ the Sustainable Rural Infrastructure Improvement Project,⁴ and the PRAN Agribusiness project.

11. In Southeast Asia, Cambodia had only the third largest ANRRD portfolio. However, it had the largest portfolio of Asian Development Fund countries. It had several poverty-focused integrated rural

² ADB. 2005. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to Bangladesh for the Southwest Area Integrated Water Resources Planning and Management Project*. Manila.

³ ADB. 2005. *Report and Recommendation of the President to the Board of Directors: Proposed Loan and Administration of Loan to Bangladesh for the Participatory Small-Scale Water Resources Sector Project*. Manila.

⁴ ADB. 2005. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to Bangladesh for the Sustainable Rural Infrastructure Improvement Project*. Manila.

development projects with an emphasis on smallholder farmers. It also had more recent projects focused on climate resilience. During the mission in March 2018, the team met with central government agencies, development partners, a nongovernment institution, and a private sector counterpart. The team also visited selected projects sites of the Tonle Sap Poverty Reduction and Smallholder Development project,⁵ the Water Resources Management Sector Development Program,⁶ and the Uplands Irrigation and Water Resources Management Sector project.⁷

12. In the East Asia region, the PRC is the largest country by volume receiving ANRRD support and its portfolio led the way for more innovative projects related to natural resources (e.g., forestry and wetlands), agriculture and value chain development, and many private sector projects. In the PRC, the evaluation team met with central and local government agencies, nongovernment and/or academic institutions, private sector, and development partners. The team also carried out field visits to project sites for the Environmentally Sustainable Agricultural Input Distribution Project in Linyi, Shandong,⁸ the Anhui Chao Lake Environmental Rehabilitation Project in Hebei,⁹ and the Comprehensive Agricultural Development Project in Yinchuan, Ningxia.¹⁰ These projects represented the main focus areas in the PRC portfolio—agribusiness, pollution prevention and natural resource management, and agricultural productivity.

13. In the Central and West Asia region, Tajikistan was selected as it is an Asian Development Fund country and because its portfolio covers a broad range of ANRRD interventions, including irrigation, flood protection, and climate resilience. It was also regarded as fairly representative of institutional issues common in the former Soviet states. During the April 2018 mission, the evaluation team met with government agencies, development partners, and the private sector project counterparts for the Water Resource Management in Pyanj River Basin Project.¹¹

14. In the Pacific, the ANRRD portfolio is small in comparison to other regions. However, given the region's importance, particularly concerning natural resources and climate change, the evaluation carried out a desk review of the relevant strategies and project and program documents and conducted interviews with project officers at ADB headquarters and in selected resident missions. An independent evaluation mission to Fiji and Papua New Guinea (PNG) was carried out in March 2018 to meet with regional stakeholders. Fiji was selected for the mission based on its portfolio volume, because it was representative of the Pacific region and ADB project experience, the significance of ANRRD to Fiji economy, and the potential needs and opportunities for ADB support. Similarly, PNG was selected because of the significance of ANRRD in the PNG economy, the role of PNG in developing islands economy, and the potential needs and opportunities for ADB support.

⁵ ADB. 2017. *Report and Recommendation of the President to the Board of Directors: Proposed Loan and Grant for Additional Financing to the Kingdom of Cambodia for the Tonle Sap Poverty Reduction and Smallholder Development Project*. Manila.

⁶ ADB. 2017. *Report and Recommendation of the President to the Board of Directors: Proposed Loans, Grant, Technical Assistance Grant, and Administration of Loan and Technical Assistance Grants to the Kingdom of Cambodia for the Water Resources Management Sector Development Program*. Manila.

⁷ ADB. 2015. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the Kingdom of Cambodia for the Uplands Irrigation and Water Resources Management Sector Project*. Manila.

⁸ ADB. 2017. *Report and Recommendation of the President to the Board of Directors: Proposed Loan and Equity Investment to Linyi Kingfarm Cooperative Agricultural Services, Kingfarm Agricultural Services for the Environmentally Sustainable Agricultural Input Distribution Project in the People's Republic of China*. Manila.

⁹ ADB. 2012. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the People's Republic of China for the Anhui Chao Lake Environmental Rehabilitation Project*. Manila.

¹⁰ ADB. 2012. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the People's Republic of China for the Comprehensive Agricultural Development Project*. Manila.

¹¹ ADB. 2016. *Report and Recommendation of the President to the Board of Directors: Proposed Loan, Grant, and Administration of Grant and Technical Assistance Grant to the Republic of Tajikistan for the Water Resources Management in Pyanj River Basin Project*. Manila.

15. The findings from the desk review and the country and region case study missions were integrated. Lessons, innovations, and good practices were obtained from these case studies to support the evaluation.

2. Performance and Results Review

16. To assess the performance, results and lessons from ANRRD projects, the assessment reviewed the documents of projects that had been evaluated by the Independent Evaluation Department operations. The performance review covered 110 project validation reports and project and/or program performance evaluation reports that were circulated during 2005–2017. In addition to the trends and performance by country, region, modality, subsector, and subtheme, the performance review also assessed the performance of projects in terms of their relevance, effectiveness, efficiency, and sustainability and identified the issues, lessons, and determinants of success and failure.

17. To assess the results, the evaluation reviewed the outcomes achieved against the corporate and sector objectives as well as the priority areas identified in the evaluation's theory of change. The assessment also covered crosscutting aspects such as gender, private sector development, safeguards, and innovation.

18. To supplement the performance and results view, the evaluation team experimented with using remote sensing and geographic information system technology to evaluate spatial outcome indicators. The evaluation used remote sensing technology to compare before and after effects of a natural resource project such as wetlands restoration and irrigation projects that was intended to increase productivity. IED has limited experience with this technology and the sector-wide evaluation offered an opportunity to pilot its use. The ANRRD sector lends itself naturally to the application of this technology, given that many of the indicators in design and monitoring frameworks are spatially related, e.g., increase in crop yields measures in kilogram per hectare, decrease in area at risk from flooding, and increase in area of restored wetland.

D. Institutional Review

19. The evaluation reviewed the organizational structure and human resources dimensions of ADB and its ANRRD operations and their evolution from 2005 to 2017. The evaluation considered the human resource data to bring out some trends in skills and capacity in support of the sector over time. This information was supplemented by the results from the staff survey, interviews and a comparison with other multilateral development banks. The assessment also focused on some of the coordination challenges and quality at entry and supervision.

20. **Staff perception survey.** The evaluation carried out a perception survey in 2018 among staff working directly on agriculture and natural resources in the regional departments (at headquarters and resident missions), in the Agribusiness Unit of the PSOD, and in the Sustainable Development and Climate Change Department, including the members and secretariat of the Rural Development and Food Security Thematic Group. The survey was intended to draw out staff views on the portfolio, key processes, and directions, issues and challenges in the sector. The survey covered a total of 125 respondents including international, national and administrative staff working in the sector.

21. **Interviews and discussions.** Key informant interviews and focus group discussions were conducted at ADB headquarters. The evaluation drew on feedback based on semi-structured interviews and consultations with relevant sector directors and thematic and sector group leads as well as a cross-section of senior staff within ADB. Beyond agriculture divisions and teams, the evaluation team also met with other departments, including the Budget, Personnel, and Management Systems Department; the Strategy, Policy and Review Department; and the Sustainable Development and Climate Change Department staff.

22. **Multilateral development bank comparison.** The evaluation conducted a review of multilateral development bank support for agriculture. This analysis compared the support for agriculture offered by ADB, the European Bank for Reconstruction and Development, Inter-American Development Bank, International Fund for Agricultural Development, and the World Bank and analyzed the strategic positioning of the sector, operational guidance, portfolio, sectoral trends and results. The team integrated the available evaluation databases from ADB, World Bank Group, and International Fund for Agricultural Development and consolidated them to compare performance across subsectors and countries.

APPENDIX 2: SCOPE FOR ADB SUPPORT FOR AGRICULTURE IN THE PACIFIC

1. The operations of Asian Development Bank (ADB) in the Pacific are underpinned by its focus on transport development to help reduce costs of connectivity. In agriculture, this helps bring producers closer to the market. In the context of Pacific economies, agriculture development could not be tackled in isolation without associated investments in transport. Markets are fragmented, which is in part attributable to poor infrastructure connections. Reducing transport costs is key to strengthening the value chain that links farmers with traders, agriculture enterprises, and exporters. Given the limited interplay of supply and demand in narrow geographic areas and small market sizes, this implies that initiatives in the agriculture sector could have more chances of succeeding if they were accompanied by complementary investments in roads and other infrastructure facilities. ADB is therefore justified in carrying out its strategic focus on infrastructure, especially transport.

2. However, based on discussions with various stakeholders, including development partners, there is scope for greater ADB support in the agriculture sector in selected areas, especially in Papua New Guinea (PNG) where the sector is strategically important. A compelling rationale for ADB support for PNG's agriculture is the erratic trend in agricultural production in recent years, high dependence on commodity imports, and persistence of underinvestment in the sector. A caveat is that ADB's support must take account of both PNG's development constraints and ADB's possible comparative advantage over the government, development partners, and the private sector. Specifically, ADB needs to identify specific investment areas that will generate high socioeconomic results.

3. ADB can assist in identifying agriculture's binding constraints in the Pacific through diagnostic studies that systematically identify major bottlenecks and critical factors affecting the sector. These may lead to the identification of areas in need of government interventions or ADB support and help ADB to frame the key analytical considerations behind the selection of modalities or instruments in future operations, including how related constraints can be addressed (i.e., simultaneously or in sequence).

4. ADB can support the private sector to explore the potential for niche agriculture products such as coffee, cocoa, aquaculture, and high-value marine products. There may be a need to investigate potential demonstration sites and schemes, including farmers and agribusiness enterprises that would be prepared to adopt new technologies or practices for the production of these niche agriculture products.

5. ADB could provide support to improve sanitary and phytosanitary practices. Interviews with development partners indicated that there are weaknesses in sanitary and phytosanitary practices in the Pacific. These include lack of harmonization with international standards in terms of food safety and animal and plant health measures and outdated sampling and testing methods and inspection techniques. These increase trade costs, and the time required to meet export requirements, thus hampering the export potential of agriculture products. There is a need to enhance internationally acceptable agrifood handling, inspection and testing measures that will allow Pacific island economies to boost exports and provide job and income opportunities. ADB, through regional technical assistance, could support Pacific island economies' efforts to strengthening food safety and animal and plant health standards. This could help explore the subregion's potential of increasing agrifood exports to neighboring countries.

6. Table A2 encapsulates the critical factors underlying strengths, weaknesses, opportunities, and risks to agriculture in the Pacific.

Table A2: Strengths, Weaknesses, Opportunities, and Risks to Agriculture in the Pacific

Factors Contributing to the Desired Result	Factors Detracting from the Desired Result
<p>Strengths</p> <p>Country diagnostic studies for Papua New Guinea and Fiji were solid but need updating, with a key focus on agriculture sector.</p> <p>Pacific island economies have diverse agricultural products, some of which have potential for niche markets.</p> <p>There is some evidence of improving private sector participation.</p> <p>Government ownership of plans and strategies has increased.</p>	<p>Weaknesses</p> <p>Agriculture reform agendas cover a wide range of subjects, with almost no systematic identification of binding constraints or drivers of growth.</p> <p>There has been underinvestment in the sector due to constrained financing from both public and private sectors.</p> <p>Institutional constraints on human resource capacity and customary ownership of lands.</p>
<p>Opportunities</p> <p>Expand coverage of diagnostic studies in terms of the number of Pacific island countries covered and with a specific focus on agricultural sector.</p> <p>Ongoing and completed ADB transport projects could pave the way for better connectivity between farmers and markets.</p> <p>Support the private sector in exploring the potential for niche agriculture products.</p> <p>Support for enhancing sanitary and phytosanitary practices.</p>	<p>Risks</p> <p>Pacific island economies are highly vulnerable to external economic shocks, natural disasters, and changes in climatic conditions.</p> <p>Geographic dispersion contributes heavily to costs of doing business.</p> <p>Lack of private sector participation may affect growth prospects.</p>

Source: Asian Development Bank (Independent Evaluation Department).

APPENDIX 3: LIST OF AGRICULTURE, NATURAL RESOURCES, AND RURAL DEVELOPMENT PROJECT COMPLETION REPORT VALIDATIONS AND PROJECT PERFORMANCE EVALUATION REPORTS

Loan/Grant Number	Country	Project name	Approved Amount (\$ million)	Disbursed Amount (\$ million)	Approval Date	Actual Closing Date	Subsector (2009)	PCR Overall Rating	PVR Overall Rating	PPER Overall Rating
G0034/ G0035	CAM	Tonle Sap Sustainable Livelihoods Project	19.7	14.7	21 Dec 05	31 Dec 10	WBNRM	LS	LS	...
G0063	NEP	Commercial Agriculture Development Project	18.0	14.9	16 Nov 06	11 Feb 14	APM	S	S	...
1146	PAK	Chasma Right Bank Irrigation Project Stage III	185.0	191.6	17 Dec 91	30 Jun 11	IDFP	S	LS	...
1166	SRI	North Western Province Water Resources Management	30.0	17.3	25 Jun 92	23 Mar 01	WBNRM	S	...	LS
1259	VIE	Irrigation and Flood Protection Rehabilitation Project	76.5	66.2	26 Oct 93	8 Apr 03	IDFP	LS	...	S
1289	BAN	Khulna-Jessore Drainage Rehabilitation Project	50.0	32.7	14 Dec 93	18 Mar 03	IDFP	S	...	U
1339	INO	Capacity Building Project in the Water Resources Sector	27.7	18.3	6 Dec 94	29 Nov 02	WBNRM	S	...	LS
1365/1366	PHI	Second Irrigation Systems Improvement Project	30.0	25.0	30 Aug 95	18 Apr 06	IDFP	LS	LS	...
1381	BAN	Small-scale Water Resources Development Sector Project	32.0	27.3	26 Sep 95	15 Jan 03	WBNRM	S	...	S
1403	PAK	Forestry Sector Project	42.6	7.4	9 Nov 95	22 May 07	Forestry	LS	LS	...
1412	TON	Outer Islands Agriculture Development	3.6	3.3	12 Dec 95	10 Oct 01	ARSD	S	...	U
1413	PAK	National Drainage Sector Project	140.0	123.5	12 Dec 95	18 Sep 07	IDFP	U	U	...
1437	NEP	Second Irrigation Sector Project	25.0	22.7	16 May 96	13 Nov 03	IDFP	LS	S	...
1453	PHI	Bukidnon Integrated Area Development Project	20.0	2.6	23 Jul 96	1 Apr 04	ARSD	LS	LS	...
1467	PAK	Bahawalpur Rural Development Project	38.0	31.8	26 Sep 96	12 Oct 07	APM	S	S	...
1469	INO	Integrated Pest Management for Smallholder Estate Crops Project	44.0	32.9	26 Sep 96	19 Sep 06	APM	S	S	...
1479	INO	South Java Flood Control Sector Project	103.0	84.6	7 Nov 96	30 Jan 06	IDFP	S	S	...
1486	BAN	Forestry Sector Project	50.0	43.4	21 Nov 96	6 Dec 06	Forestry	S	S	...
1491	PRC	Anhui Environmental Improvement Project for Industrial Pollution Abatement	112.0	108.8	26 Nov 96	18 Feb 04	LBNRM	HS	...	S

Loan/Grant Number	Country	Project name	Approved Amount (\$ million)	Disbursed Amount (\$ million)	Approval Date	Actual Closing Date	Subsector (2009)	PCR Overall Rating	PVR Overall Rating	PPER Overall Rating
1500	MAL	Klang River Basin Environmental Improvement and Flood Mitigation Project	26.3	8.4	5 Dec 96	7 Feb 06	WBNRM	LS	S	...
1504	UZB	Rural Enterprise Development	50.0	45.6	17 Dec 96	13 Jun 02	APM	S	...	LS
1515	VIE	Forestry Sector Project	33.0	10.5	20 Mar 97	28 Nov 06	Forestry	S	S	...
1526	INO	Participatory Development of Agricultural Technology Project	63.8	49.5	1 Jul 97	11 Sep 06	APM	S	S	...
1531	PAK	Dera Ghazi Khan Rural Development Project	36.0	30.8	4 Sep 97	31 May 07	ARSD	S	S	...
1552	SRI	Second Perennial Crops Development Project	20.0	18.8	25 Sep 97	10 Apr 07	APM	S	S	...
1562/1563	PHI	Fisheries Resource Management Project	35.2	21.1	16 Oct 97	20 Nov 06	Fishery	S	LS	...
1570/1571	INO	Coastal Community Development and Fisheries Resource Management Project	41.0	15.2	4 Nov 97	30 May 06	WBNRM	S	S	...
1578	PAK	Second Flood Protection Sector Project	100.0	48.2	13 Nov 97	25 May 07	WBNRM	S	S	...
1579	INO	Northern Sumatra Irrigated Agriculture Sector Project	130.0	65.4	13 Nov 97	8 Sep 06	IDFP	S	LS	...
1583	INO	Rural Income Generation Project	78.6	49.3	25 Nov 97	14 Nov 08	ARSD	S	LS	...
1592/1593	KAZ	Water Resources Management and Land Improvement Project	40.0	32.5	17 Dec 97	31 Dec 06	IDFP	S	LS	...
1604	NEP	Second Agriculture Program	50.0	48.9	22 Jan 98	31 Dec 00	ARSD	S	...	S
1605	INO	Central Sulawesi Integrated Areas Development and Conservation Project	32.0	21.7	27 Jan 98	16 Jun 06	LBNRM	S	S	...
1609	NEP	Community Groundwater Irrigation Sector Project	30.0	10.2	26 Feb 98	21 Jan 08	IDFP	S	S	...
1639	SRI	Tea Development Project	35.0	34.2	10 Nov 98	10 Apr 07	APM	S	S	...
1643	BAN	Sundarbans Biodiversity Conservation Project	37.0	7.7	27 Nov 98	19 Dec 07	WBNRM	U	U	...
1652	PNG	Smallholder Support Services Pilot Project	7.6	5.4	10 Dec 98	30 Apr 09	APM	S	S	S
1667	PHI	Agrarian Reform Communities Project	93.2	72.6	18 Dec 98	26 Dec 08	ARSD	S	S	...
1668	PHI	Southern Philippines Irrigation Sector Project	60.0	50.0	18 Dec 98	30 Jun 11	IDFP	LS	LS	...
1672	PAK	Malakand Rural Development Project	41.0	25.7	18 Mar 99	1 Jul 08	ARSD	U	U	...
1688	LAO	Shifting Cultivation Stabilization Pilot Project	5.6	5.6	11 May 99	4 May 07	LBNRM	S	S	...

Loan/Grant Number	Country	Project name	Approved Amount (\$ million)	Disbursed Amount (\$ million)	Approval Date	Actual Closing Date	Subsector (2009)	PCR Overall Rating	PVR Overall Rating	PPER Overall Rating
1716	SRI	Coastal Resources Management Project	40.0	40.2	7 Dec 99	2 Sep 10	WBNRM	S	S	...
1726	KGZ	Agriculture Area Development Project	36.0	38.8	20 Dec 99	17 Dec 09	APM	S	S	...
1736	MON	Cadastral Survey and Land Registration Project	9.9	9.7	27 Jan 00	5 Oct 10	LBNRM	LS	LS	...
1739/1740	PHI	Grains Sector Development Program	175.0	35.5	24 Apr 00	8 Jun 04	APM	LS	U	...
1742	KGZ	Community-Based Infrastructure Services Sector	36.0	39.1	8 Jun 00	27 Jan 10	RWSS	LS	LS	...
1744	SRI	Forest Resources Management Sector Project	27.0	24.9	28 Jun 00	22 Jul 10	Forestry	S	S	...
1753	CAM	Stung Chinit Irrigation and Rural Infrastructure Project	16.0	14.7	5 Sep 00	4 Dec 08	IDFP	LS	LS	...
1755	NEP	Small Town WSS	35.0	32.1	12 Sep 00	3 Dec 09	WSS	S	S	...
1757	SRI	Water Resources Management Project	19.7	2.3	19 Sep 00	26 Dec 07	WBNRM	U	U	...
1767	SRI	Protected Area Management and Wildlife Project	12.0	12.3	19 Oct 00	31 Dec 08	LBNRM	S	S	...
1770	INO	Marine and Coastal Resources Management Project	50.0	45.5	26 Oct 00	24 Jul 09	WBNRM	S	S	...
1771	BAN	Chittagong Hill Tracts Rural Development Project	30.0	29.7	26 Oct 00	22 Feb 10	LBNRM	S	S	...
1778	NEP	Crop Diversification Project	11.0	10.2	9 Nov 00	19 Dec 08	APM	S	S	...
1781	VIE	Tea and Fruit Development Project	40.2	43.3	14 Nov 00	4 Sep 08	APM	S	S	...
1787	PAK	NWFP Barani Area Development Project (PRM-CWEN	52.0	29.5	28 Nov 00	30 Jun 10	ARSD	S	S	...
1788	LAO	Decentralized Irrigation Development and Management Project	15.6	17.6	28 Nov 00	5 Feb 10	IDFP	S	S	...
1814	PRC	West Henan Agricultural Development Project	64.3	64.3	19 Dec 00	5 Dec 07	APM	S	S	...
1821/1822	MON	Agriculture Sector Development Program (ASDP)	17.0	17.2	21 Dec 00	11 Dec 03	ARSD	LS	LS	...
1831	BAN	Second Small-Scale Water Resources Development Sector Project	34.0	33.1	12 Jul 01	15 Jun 10	WBNRM	S	S	...
1833	UZB	Ak Altin Agricultural Development Project	36.0	25.2	23 Aug 01	12 Jul 10	APM	LS	LS	...
1835	PRC	Yellow River Flood Management Sector Project	150.0	113.8	28 Aug 01	16 Oct 08	IDFP	S	S	...

Loan/Grant Number	Country	Project name	Approved Amount (\$ million)	Disbursed Amount (\$ million)	Approval Date	Actual Closing Date	Subsector (2009)	PCR Overall Rating	PVR Overall Rating	PPER Overall Rating
1862	CAM	Northwestern Rural Development Project	27.2	30.5	27 Nov 01	21 Jan 09	ARSD	S	LS	...
1877/1878/1879	PAK	Agriculture Sector Program II	350.0	366.3	13 Dec 01	3 Jul 07	APM	LS	U	...
1883 / G3800	VIE	Central Region Livelihood Improvement Project	59.5	67.5	17 Dec 01	28 Apr 10	ARSD	S	S	...
1889	PNG	Nucleus Agro-Enterprises	5.9	1.5	18 Dec 01	21 Nov 07	APM	LS	LS	...
1903	UZB	Western Uzbekistan Rural Water Supply Project	38.0	29.4	2 May 02	9 Dec 11	WSS	S	S	...
1910/1911	SRI	Aquatic Resource Development and Quality Improvement Project	20.0	21.3	5 Sep 02	26 Nov 10	Fishery	S	S	...
1919	PRC	Songhua River Flood Management Sector Project	150.0	148.0	20 Apr 02	13 Dec 09	WBNRM	S	S	...
1925	PNG	Coastal Fisheries Management and Development Project	5.7	3.9	24 Oct 02	18 Sep 08	Fishery	LS	LS	...
1933/2780	LAO	Nam Ngum River Basin Development Sector Project	20.0	22.1	11 Nov 02	11 May 11	WBNRM	S	S	...
1934	PAK	Sindh Rural Development Project	50.0	2.1	20 Nov 02	31 Mar 08	ARSD	U	U	...
1939	CAM	Tonle Sap Environmental Management Project	10.9	10.4	21 Nov 02	2 Sep 09	WBNRM	S	S	...
1941	BAN	Jamuna–Meghna River Erosion Mitigation Project	42.2	41.5	25 Nov 02	30 Jun 11	WBNRM	S	S	...
1949/2809	LAO	Smallholder Development Project	17.0	18.4	28 Nov 02	18 Sep 12	APM	S	S	...
1962	INO	Coral Reef Rehabilitation and Management Project Phase II	33.0	36.7	6 Dec 02	31 Dec 11	WBNRM	S	S	...
1972/1973	VIE	Agriculture Sector Development Program	90.0	101.2	16 Dec 02	22 Sep 08	ARSD	S	S	...
1980	TAJ	Agriculture Rehabilitation Project	35.0	40.1	18 Dec 02	20 Oct 10	ARSD	S	S	S
2006	KAZ	Rural Area WSS Sector	34.6	52.6	29 Sep 03	30 Sep 10	WSS	LS	LS	...
2008	NEP	Community-Based WSS Sector Project	24.0	23.9	30 Sep 03	15 Apr 11	WSS	S	S	...
2017	UZB	Grain Productivity Improvement Project	26.0	15.1	14 Nov 03	31 Mar 09	APM	S	S	...
2027	SRI	North East Coastal Community Development	20.0	19.8	28 Nov 03	24 Jan 12	WBNRM	S	S	...
2035	CAM	Northwest Irrigation Sector Project	18.0	19.1	9 Dec 03	13 Feb 14	Irrigation and drainage	LS	LS	...
2064/2065	INO	Participatory Irrigation Sector Project	73.0	74.3	19 Dec 03	31 Dec 12	Irrigation and drainage	S	S	S
2068	AZE	Flood Mitigation Project	22.0	23.1	19 Dec 03	26 Jan 09	WBNRM	S	S	...

Loan/Grant Number	Country	Project name	Approved Amount (\$ million)	Disbursed Amount (\$ million)	Approval Date	Actual Closing Date	Subsector (2009)	PCR Overall Rating	PVR Overall Rating	PPER Overall Rating
2069	UZB	Amu Zang Irrigation Rehabilitation Project	73.2	73.2	19 Dec 03	3 Jul 14	Irrigation and drainage	S	LS	...
2070	BAN	Second Participatory Livestock Development Project	20.0	20.8	19 Dec 03	30 Jun 12	Livestock	S	S	...
2082	PRC	Fujian Soil Conservation and Rural Development II Project	80.0	80.0	28 Apr 04	1 Sep 12	APICD	S	S	...
2083	AFG	Agriculture Sector Program	55.0	54.6	4 May 04	16 Apr 14	APM	S	LS	...
2086	LAO	Northern Community-Managed Irrigation Sector Project	10.0	10.4	5 Jul 04	23 Feb 11	IDFP	S	S	S
2124	TAJ	Irrigation Rehabilitation Project	22.7	23.2	10 Dec 04	23 Aug 11	IDFP	S	LS	...
2134	PAK	Sustainable Livelihoods in Barani Areas Project	41.0	28.1	14 Dec 04	16 Jul 12	ARSD	HS	S	...
2143	NEP	Gender Equality and Empowerment of Women Project	10.0	7.4	16 Dec 04	11 Dec 13	ARSD	S	S	...
2157/4571	PRC	Sanjiang Plain Wetlands Protection Project	15.0	15.0	14 Mar 05	30 May 13	WBNRM	S	S	S
2158	FIJ	Alternative Livelihood Development Project	25.0	0.5	28 Mar 05	1 Dec 08	APM	U	U	...
2171	PAK	Agribusiness Development Project	31.0	13.0	19 May 05	30 Sep 11	APM	U	U	...
2208	UZB	Kashkadarya and Navoi Rural WSS Sector Project	25.5	23.0	12 Dec 05	30 Jun 11	WSS	S	S	...
2221	INO	Rural Infrastructure Support project	50.0	51.1	19 Dec 05	11 Aug 09	Multisubsector	S	S	...
2223	VIE	Central Region Water Resources Project	74.3	80.3	19 Dec 05	18 Feb 13	WBNRM	S	...	S
2244	PRC	Hunan Flood Management Sector Project	200.0	191.2	29 Jun 06	31 Dec 14	WRM	S	S	...
2245/2246/0080	UZB	Land Improvement Project	60.2	52.9	24 Jul 06	30 Sep 15	Irrigation and drainage	S	S	...
2254/0053	BAN	Second Rural Infrastructure Improvement Project	96.1	97.7	18 Aug 06	26 Dec 13	ARSD	S	LS	...
2273	VIE	Emergency Rehabilitation of Calamity Damage Project	80.0	80.0	21 Nov 06	8 Aug 12	IDFP	S	S	...
2283	VIE	Agriculture Science and Technology Project	30.0	30.9	11 Dec 06	13 Aug 14	ARA	S	S	...
2285	INO	Sustainable Aquaculture Development for Food Security and Poverty Reduction Project	33.3	31.6	12 Dec 06	31 Dec 13	Fishery	HS	S	...
2313/0072/0111	TAJ	Rural Development Project	17.1	10.6	29 Jan 07	12 Feb 15	APM	LS	LS	...

Loan/Grant Number	Country	Project name	Approved Amount (\$ million)	Disbursed Amount (\$ million)	Approval Date	Actual Closing Date	Subsector (2009)	PCR Overall Rating	PVR Overall Rating	PPER Overall Rating
2356	TAJ	Khatlon Province Flood Risk Management	22.0	22.3	5 Oct 07	15 Aug 14	IDFP	S	S	...
2430	BAN	Emergency Assistance for Food Security Project	170.0	164.5	22 Jul 08	21 Jun 10	APICD	S	S	...
2449	INO	Rural Infrastructure Support to PNPM Mandiri	50.0	48.1	29 Sep 08	9 Sep 11	Multisubsector	S	S	...
4357	PRC	Capacity Building to Combat Land Degradation Project	1.0	1.0	28 Jun 04	12 Mar 10	LBNRM	S	S	...
Total			5,463.7	4,605.3						

... = not applicable; ADB = Asian Development Bank; AFG = Afghanistan; APICD = agricultural policy, institutional and capacity development; APM = agricultural production and markets; ARA = agriculture research and application; ARSD = agriculture and rural sector development; AZE = Azerbaijan; BAN = Bangladesh; CAM = Cambodia; FIJ = Fiji; HS = highly successful; IDFP = irrigation, drainage and flood protection; INO = Indonesia; KAZ = Kazakhstan; KGZ = Kyrgyz Republic; LAO = Lao Peoples Democratic Republic; LBNRM = land-based natural resources management; LS = less than successful; MLD = Maldives; MON = Mongolia; NEP = Nepal; PAK = Pakistan; PCR = project completion report; PHI = Philippines; PNG = Papua New Guinea; PPER = project performance evaluation report; PRC = People's Republic of China; PVR = project completion report validation report; RWSS = rural water supply services; S = successful; SRI = Sri Lanka; TAJ = Tajikistan; TON = Tonga; U = unsuccessful; UZB = Uzbekistan; VIE = Viet Nam; WBNRM = water-based natural resources management; WRM = water resource management; WSS = water supply and sanitation.

Source: Asian Development Bank.

ADB Support for Agriculture, Natural Resources, and Rural Development

This evaluation finds that ADB's overall support for sustainable agriculture and food security has been significant in terms of lending volume, but modest on results. This assessment is based on the weakness of ADB's strategic guidance, limited development outcomes, and inadequate institutional arrangements for delivery. Given the availability of financial resources, re-engagement by ADB in the sector, and the improving portfolio performance, ADB has the potential to make a substantial contribution.

About the Asian Development Bank

ADB is committed to achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty. Established in 1966, it is owned by 67 members—48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

About the Independent Evaluation at Asian Development Bank

The Independent Evaluation Department evaluates the policies, strategies, operations, and special concerns of the Asian Development Bank relating to organizational and operational effectiveness. It contributes to development effectiveness by providing feedback on performance and through evaluation lessons.

Contact Information

Independent Evaluation at the
Asian Development Bank
6 ADB Avenue, Mandaluyong City
Philippines 1550
www.adb.org/evaluation
Email: evaluation@adb.org
Telephone: (+63-2) 632 4100
Fax: (+63-2) 636 2161



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