SECTOR ASSESSMENT (SUMMARY): AGRICULTURE, RURAL DEVELOPMENT, AND NATURAL RESOURCES

1. Agriculture continues to be a key sector in the Cambodian economy, contributing about 30% of gross domestic product (GDP) in 2007. While agriculture’s share of GDP has declined over time, gross agricultural output has expanded, reflecting an increase in the area under irrigation, the use of improved inputs, and some commercialization in farming. The total value of agriculture sector production increased about 40% between 2002 and 2007. Agriculture has grown by around 5% annually, although this is a much lower rate than the industry and services sectors, with significant year-on-year variability in paddy rice production due to climactic events. While the agriculture sector’s contribution to GDP is declining as the economy’s structure shifts toward industry and services, it remains a vitally important source of employment, enterprise formation, and poverty reduction. Most agriculture employment is informal but the proportion of the labor force with a primary occupation in agriculture was only 59% in 2007 compared to 81% in 1993. Agricultural productivity in terms of labor ($170 per worker/year), land ($518 per hectare [ha]/year), and paddy yields are among the lowest in Southeast Asia. Average paddy yields (2008) are 2.7 tons/ha compared to 4.0 tons/ha in Southeast Asia but these have risen by 50% over the last 20 years, and are still less than 1 ton/ha in some areas. In 2007, the farm-gate price of paddy was about $200 per ton (compared to $270 in Thailand and $280 in Vietnam) due to poor market connectivity.

2. Environmental and natural resources sustainability is a key challenge for the country’s inclusive and sustainable economic growth agenda. Cambodia has ample land resources but constraints on better use include increasing demographic pressures, insecure land rights, unequal landholdings, increasing landlessness and near landlessness, and low levels of productivity and investment. In particular, water resources are suffering from declining quality and quantity—282 out of 458 river basins (62%) are considered critical, and 70% suffer from degraded upper catchments. Droughts and floods are common. A key feature of water resources in Cambodia is the Tonle Sap basin, which is under pressure from development.

3. The major agencies in the rural sector are the Ministry of Agriculture, Forestry and Fisheries (MAFF), the Ministry of Rural Development (MRD), and the Ministry of Water Resources and Meteorology (MOWRAM). There are functional overlaps between the three and collectively they suffer from acute shortages of qualified staff, which limits institutional effectiveness, and from weak inter- and intraministry coordination mechanisms.

4. Between 2000 and 2008 government expenditure grew faster than the economy, and capital expenditure grew faster than recurrent expenditure. However, public investment in agriculture (inclusive of both domestic and aid agency funds), while increasing, still remains low at 1%–2% of agricultural GDP (just under 1% of total GDP). The main vehicles for such investments are the capital programs of MAFF, MOWRAM, and MRD, and these are the most underfunded ministries in the country. Low levels of funding exacerbate public expenditure inefficiencies and low levels of service delivery in rural areas. For example, large-scale irrigation systems have deteriorated over time due to inadequate resources for operations and maintenance (O&M). Increasing the quality of public financial management systems in these ministries is a policy priority for government, and significant intervention is under way through decentralization and deconcentration reforms.

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1 This sector assessment is a summary of Cambodia: Agriculture, Rural Development and Natural Resources Sector Assessment, Strategy and Road Map. http://wpddoc1.asiandevbank.org/domdoc/WCOO-79TD7Z.nsf/(webopenlink)?OpenAgent&docID=1DA1FFC0ACBE1F874825779200151BD7&docUNID=1DA1FFC0ACBE1F874825779200151BD7&Open=1.

2 For the purposes of this assessment, the sector definition of “agriculture” throughout the text includes rural development and natural resource management. It thus includes activities such as forestry and fisheries (and the resources upon which they depend) and agroindustry.
5. The United Nations Framework Convention on Climate Change has highlighted that climate change will have significant effects on agriculture and natural resources in countries such as Cambodia, but where, how much, and on whom is not known. Improvements in water management and productivity will be especially critical for Cambodia. Because rainfall will be more variable and changed in its spatial distribution, it will increase the need for better water harvesting, storage, and management. Significant climate change impacts will also be felt along the coastline and within the Mekong delta area due to sea level rise, affecting fisheries.

6. Many sector constraints exist, including the underdeveloped agribusiness policy; the lack of clarity in government agencies’ roles and functions; the lack of responsiveness to private sector needs; and the need to manage contract farming, cross-border arrangements, and large-scale private farming. Many factors inhibit productivity improvements: weak agriculture research and extension; inadequate information, communication, and technology services for farmers, traders, and processors; and problematic land titling. Rural infrastructure development is essential for increasing productivity, improving access to inputs and markets, and connecting production with processing. However, investment is inadequate and innovative ways are needed to promote public–private partnerships in the provision and operation of infrastructure. Adequate funding for infrastructure O&M remains a concern.

7. Legislation has decentralized functional responsibility but actual authority and capacity at the local level to plan, implement, and manage rural infrastructure and service provision is limited. Underperformance can be seen in the low primary output volumes and values, modest exports, low farmer and enterprise profitability, limited enterprise formation, low sector value addition, forest and biodiversity losses, and the compromising of resource quantity and quality. The key causes of this limited capacity can be summarized as
   (i) an increasingly compromised natural resource base;
   (ii) longer-term vulnerability to climate change impacts, especially those related to water resources (floods and droughts) and in coastal zones;
   (iii) unmet demand for rural infrastructure including roads, irrigation systems, and rural power that limits access to value-adding input and product markets;
   (iv) low access to expertise that improves productivity because of limited agriculture research, extension, and other information services;
   (v) limited access to credit to purchase improved technology;
   (vi) incomplete policy and institutional reforms and continuing weaknesses in public institutional capacity to deliver public goods and services effectively to users; and
   (vii) weak sector governance enforcement that hampers the government's ability to protect property rights and the common property natural resource base such as forests, river basins, and land concessions awards.

8. **Government sector strategy.** The Rectangular Strategy for Growth, Employment, Equity, and Efficiency (Phase 2) and the National Strategic Development Plan 2009–2013 place increased importance on the role of agriculture (and water) as a vehicle for macroeconomic and rural development. The Strategy for Agriculture and Water Resources 2006–2010 (SAW), adopted by MAFF and MOWRAM in March 2007, is the overarching framework for government and development partner efforts in agriculture and rural development. The program for 2010–2013 was approved by the ministers of MAFF and MOWRAM in April 2010. The overall goal of the SAW is to contribute to poverty reduction, food security, and economic growth by enhancing agricultural productivity and diversification and improving water resources development and management. The total resource requirements of the SAW are estimated at $501 million for six program areas: (i) policy and regulation, (ii) institutional capacity building and human resource development, (iii) research and education, (iv) food security, (v) water resource management and agricultural land management, and (vi) agricultural business and marketing.
The water resources subsector. The effectiveness and efficiency of water management has a considerable impact on Cambodia’s agriculture sector performance. The Tonle Sap basin in particular has both livelihood provision and crucial ecological service characteristics. This is recognized in government planning that focuses on agriculture and water resources together, as reflected in the SAW. Water distribution is highly seasonal, with a natural pattern of wet and dry seasons. Major floods are caused primarily by the Mekong River with both positive (sustaining the Tonle Sap and Lower Mekong delta water cycles) and negative impacts (damage to infrastructure and crops, and loss of life). Droughts are also serious; those in 2003 and 2004 were the longest for two decades and had a severe impact on rice production, threatening national food security and affecting more than 2 million people. Deficiencies in water and natural resources management place severe pressures on the Tonle Sap ecosystem.

Development of rivers generally impacts on local ecosystems and involves trade-offs between environmental losses and development benefits. Protection of the national water resource base is crucial to secure human uses and to protect the natural and cultural values of the Mekong River and its tributaries (86% of the country lies within the Mekong basin). Major threats include (i) loss of wetland habitats and active flood plains, (ii) unsustainable water consumption, (iii) pollution (both from industry and agriculture), and, (iv) overharvesting of water. There is lack of integrated planning and regulation of water resources, maintenance of water quality, protection of aquatic ecosystems and biodiversity, and watershed protection.

MOWRAM reports that there are 2,403 irrigation schemes in Cambodia covering a total of more than 1 million season-ha (629,028 ha in the wet season and 417,235 ha in the dry season). Most of these are small-scale schemes (less than 200 ha), and only 33 large-scale schemes (5,000 ha or more) are in operation. Cambodia has only added about 20,000 ha of irrigation infrastructure since the 1990s. Average 2008 paddy yields, mainly irrigated, are quoted as 2.74 tons/ha, although yields are highly variable between seasons, schemes, and locations.

The policy framework is still evolving: policy documents and legal instruments exist which establish principles of water resources management, notably the adoption of the Law on Water Resources in 2007 (the Water Law), but a framework to institutionalize integrated water resource management planning is not yet in place and the law does not provide sufficient guidance for the management and administration of water resources. Policy actions are needed on (i) the development of rivers and the need to balance upstream and downstream benefits and related ecological services, (ii) the operation of major dams and the mechanisms for monitoring and enforcing such conditions; (iii) how to balance the competing needs and economic benefits of fisheries, irrigated agriculture, and urban or tourism development; (iv) the role of water fees for the right to store or divert water; and (v) water quality. A critical policy area is the need for clarity on irrigation service fee collection and the O&M responsibilities of farmers.

The concept of water pricing is embodied in the Water Law which aims to promote “the effective and sustainable management of water resources” through integrated water resource management. While the law recognizes water as a public good, it also recognizes the need for water to be treated as an economic good through provision for licensing and charging fees for certain extractive uses, as well as the development of subdecrees on the establishment of farmer water user communities and water allocation. However, mechanisms for water pricing have yet to be implemented under the law. The farmer water user communities subdecree was recently submitted to the Council of Ministers for consideration, and the subdecree on allocation is being prepared. In a recent review of water governance in Cambodia, the Cambodia Development Resource Institute notes the importance of considering trade-offs between treating water as an economic good and treating it as a public good. A balance needs to be struck between

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responding to social and pro-poor needs, and efficiency. The SAW recognizes the need for a framework for water pricing.

14. The lead institution for water resources is MOWRAM, which is essentially a technical ministry responsible for provision of irrigation services, flood and drought control, hydrology and meteorology, etc. MOWRAM is mandated to manage, lead, and supervise the implementation of the Water Law, and carries out this mandate through its central agencies and provincial departments. MOWRAM’s organizational structure and staffing reflects its historical functions rather than the new and expanding responsibilities of regulating and authorizing access to water resources under the Water Law. The consequences of this are ad hoc organizational arrangements (through which new tasks associated with donor-mandated functions are performed), and probable overuse of untrained or unqualified personnel. MOWRAM has the characteristics of a supply-driven service provider with users lacking information on alternatives, and an accountability mechanism oriented towards the government rather than to users. Other government institutions with important roles in water management are the MAFF; Ministry of Industry, Energy and Mines; MRD; Ministry of Transport; Ministry of Environment; Ministry of Health; and National Disaster Management Committee. These institutions have overlapping responsibilities, unclear mandates, and generally weak capacity.

15. The policy and institutional constraints limit goods and service provisions and affect water use and wider factor and sector productivity in several ways, but two are key: underprovision and poor quality of infrastructure, and unrealized user expectations. Rural sector institutions (i.e., MOWRAM, MRD, and MAFF) have limited capacity and do not see service users primarily as customers. The customers themselves have little access to information, nor any realistic choice of service provider; some goods and services provision by the public sector is almost nonexistent.

16. **Recent ADB support for agriculture.** The ADB country strategy and program\(^4\) promotes broad-based private-sector-led economic growth, inclusive social development, and improved governance. It focuses on four sectors: agriculture and water resources, education, finance, and transport. Recent programs have included the second Agriculture Sector Development Program\(^5\) to improve and strengthen (i) farmers’ ability to boost productivity and diversify toward higher-value products and connect to markets, (ii) the market environment for private agro-based enterprise growth, and (iii) the institutional capacity for agricultural commercialization. ADB projects have also assisted with the development of the country’s water resources, including irrigation facilities and the rehabilitation of rural roads and markets.

17. Evaluations of previous ADB projects have yielded a number of lessons:

1. progress has been made in support for policy reforms but a medium-term approach is needed with a greater understanding of the political complexity of reforms and the capacity of institutions to implement reforms;

2. slow progress has been made on institutional capacity development and public financial management, and progress on O&M is needed to improve sustainability;

3. area- and basin-wide approaches depend on building institutional coordination and capacity, and continuity in capacity building support is needed;

4. simple designs are needed but project synergies, such as the combined effect of the policy and sector management programs and projects and rural infrastructure projects, need to be recognized; interventions across a number of key areas are needed to address sector issues such as value chains and farm productivity, but individual operations should not be overly complex; and

5. project implementation delays are largely due to weak institutional capacity.

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\(^5\) ADB. 2003. *Report and Recommendation of the President to the Board of Directors: Proposed Loans to the Kingdom of Cambodia for the Agricultural Sector Development Program.* Manila (Loan 2022/2023-CAM).
Problem Tree for Agriculture, Rural Development and Natural Resources Sector

National Impacts

Lower than average sector contribution to economic growth (and exports), modest impact on poverty reduction, limited contribution to reducing national vulnerability

Sector Impacts

Low primary output volumes and values; very modest exports

Low sector value addition

Restricted farmer and enterprise profitability; limited enterprise formation

Land, forest and biodiversity losses; resources quantity and quality erosion

Core Sector Problem

Non-developed, un-integrated and increasingly compromised agriculture, rural development and natural resources sector

Main Causes

Low factor (land and labor) productivity; limited technology base

Limited inter- and intra-sector connectivity; limited regional and global agricultural trade

Poor natural resource management; increasing exposure and vulnerability

Deficient Sector Outputs

Large areas of poor/sandy soils

Low availability of fertilizers and other inputs

Few improved varieties and no domestic seed production

Limited irrigation and drainage

Poor animal nutrition

Farmers’ own knowledge base is low

Weak agriculture extension services

Lack of access to production and development credit (limited funds, no collateral)

Inadequate and inefficient processing facilities

Deficient rural infrastructure stock (roads and irrigation)

Poor regulatory environment; businesses remain small and informal

High cost and unreliability of rural power supplies

Poor physical international links (ports, roads, rail)

Absence of export market information, bulking, bonding / forwarding, Sanitary and phytosanitary standards, and quarantine services, etc.

Under-capitalization (trade and investment finance)

Inadequate or incomplete legislative provisions

Weak institutions, limited capacity

Poor natural resource planning (no integrated water resources management, no resource pricing)

Weak control of agriculture inputs use (pollution, contamination)

Land concessions process not rational or transparent

Lack of preparedness for climate change impacts (water use, coastal zones, rural infrastructure)
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<td>Sustainable natural resource development, management and conservation</td>
<td>Improved policy, legal and institutional framework</td>
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<td>Greater food security and improved incomes, employment and nutrition through improved agricultural productivity, diversification and commercialization</td>
<td>Increased water security for human livelihoods and ecosystem services</td>
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<td>Improved market access of agricultural products</td>
<td>Increased resilience to climate change</td>
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<td>Reduced economic and social costs of floods and droughts</td>
<td>Sustainable rehabilitation of existing small- and medium-scale irrigation schemes in the Tonle Sap basin</td>
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<td>Forest cover maintained</td>
<td>Improved PFM &amp; results-oriented M&amp;E in rural development ministries</td>
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<td>Area of cropped land with irrigation services increased by 50,000 ha between 2010 and 2013.</td>
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**ADB = Asian Development Bank, ASDP = agriculture sector development program, FWUC = farmer water users community, ha = hectare, ISO = International Organization for Standardization, IWRM = integrated water resources management, M&E = monitoring and evaluation, MOWRAM = Ministry of Water Resources and Meteorology, PFM = public financial management systems, SDP = sector development program, SPS = sanitary and phytosanitary standards, t = ton, IWRM = water resources management sector development program.**