

The Agricultural Sector in Cambodia: Trends, Processes and Disparities

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Abstract: The agricultural Sector in Cambodia still contributes the dominant quantity to the GDP. It is the most important source of income and rural livelihood for around 80% of the Cambodian population. Cambodia's rural population faces new challenges like high population growth, embracing market economy and international private investment, nationwide food security and decreasing agricultural production conditions as a result of rapidly changing socio-economic conditions since 1990. Major agronomic innovations are the introduction of improved new varieties as well as rice intensifications systems like the SRI production system. With more than 2.3 million ha of rice production, there is no significant diversification in the agrarian sector. Only some vegetable, cash crop and fruit production have emerged to an increasingly important, farming system. Predominant agrarian strategies for small farmers as well as economic investors are the exploitation and even over-exploitation of natural resources with little investment into a more sustainable production.

Key Words: Cambodia, Agricultural Sector, Rice Paddy Production, Rural Disparities

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Since 2000, Cambodia has achieved overall national rice self sufficiency, although there are still regional and local deficit regions, i.e. on less suitable upland soils (World Bank 2005). The aggregated rice production has been stable in the last five years, with a surplus at the national level and according to official data national self-sufficiency in rice production was achieved in 2005 following years of deficiency (MAFF 2010). The increasing harvests since 2005 have boosted Cambodia's agrarian growth rate to 13.5% in 2007 and 2009. Severe disparities remain predominant at regional and particular at rural household level. A growing number of families are not able to survive based on their own rice production, especially in the areas affected by terrible floods in the Mekong floodplain or irregular severe drought on poor sandy soils in 2004-2005. However, an unconfirmed report from the IMF (2006) shows that farm output has continued rising since 2003 with better seeds and wider use of fertilizers.

Smallholder Rice Production, Kampot Province 2008



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Secured food production and supply

Agriculture plays the most important role in Cambodian society by ensuring food security at community and national level as well as in the provision of employment and income opportunity for a growing population. About 75% to 85% of the population is employed in the primary sector, 65% does simply rice farming and around 90% of Cambodia's poor citizen lives in rural areas (World Bank 2005). Depending on the type or form of farming practices, agriculture could improve important environmental protection issues like watershed protection, ensuring quality of water and soil resource and biodiversity.

Today, trends and processes in land occupation and land use change are resulting in disparities in the Cambodian agricultural sector. Historically, differences in soil and water resources and subsequent suitable agricultural potential were the predominant factors for population distribution. Recent population dynamics are driven by land occupation of international investors and land shortage in the lowlands. Land use planning issues and economically motivated large scale land distributions characterize new disparities and transitions in the agrarian sector of Cambodia. Continuous intervention of the state into land regulations, ownership policy, land use planning measures and distribution of land use rights to large scale agro-industrial investors illustrate the Cambodian practise. Comparing Cambodia to other SEA countries the "agrarian question" concentrates primarily on the dispute whether or not concentration of land ownership is indispensable for a full capitalist transition into a modern economic agriculture. In 1991 Cambodia transferred its collective economy into a modern market economy. Since then land use patterns have undergone an intensive agrarian transition. Land and access to land became one of the most crucial factors in the Cambodian agriculture sector.

Still the agrarian production is focussed on subsistence and smallholder farming systems with rainfed rice as the major agricultural crop and traditional source of carbohydrate, along with legumes, soybean is important followed by mungobean and the oilseed crops including groundnut and sesame. Further, among commercial crops, su-

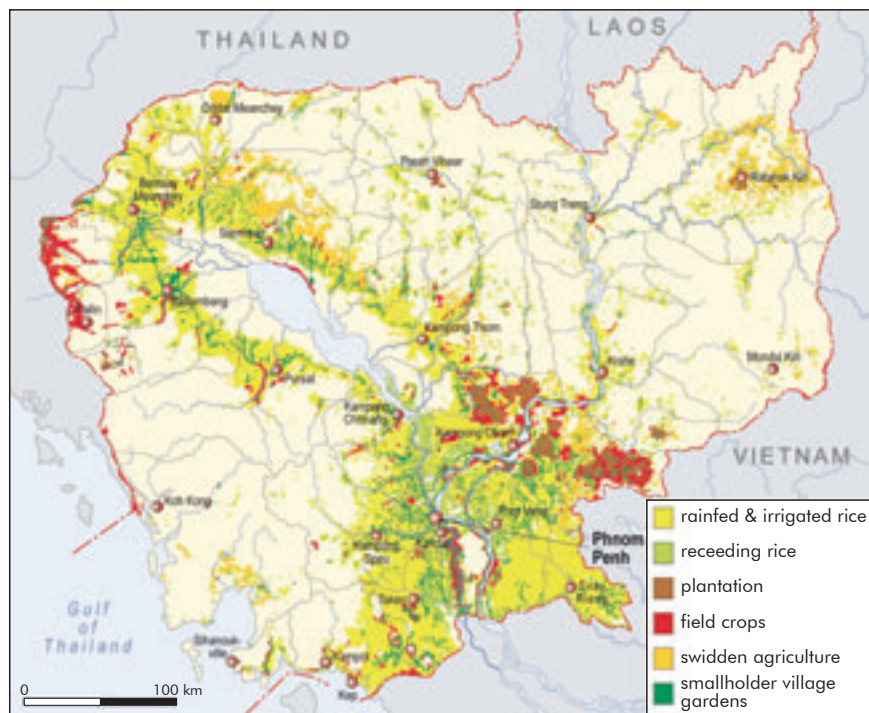


Fig. 1: Growing area of rice and other field crops in Cambodia

garcane followed by jute and tobacco is commonly grown (FAOSTAT 2008). Vegetables mostly occupy only village gardens and small fields around Phnom Penh, while economic cultivation of cassava and sweet potato is rising on large scale concessions. The customary significance of rice as the major staple food in Cambodia is emphasized by an average of 75-80 % of all calories derived from rice. According to O'BRIEN (1999) 86% of the total rice cropping area in Cambodia is either irrigated or rainfed lowland rice, only 8% is dry season rice, 4% is floating rice and 2% is upland rice (mapping by the author, based on topographic and

agricultural data (MAFF 2005, JICA 2002). Lowland rice with barely more than one crop per year represents the most abundant rice cultivation system, dependant on rainfall pattern and surface runoff for its water supply. Dry season and irrigated rice production is limited to areas close to major rivers and managed floodplains. Floating rice is grown in low-lying depressions that accumulate floodwater and is further divided based on depth and duration of the water (NESBITT, 1996). Rainfed rice production in the uplands is characterized by non banded fields and is primarily associated with shifting agriculture.

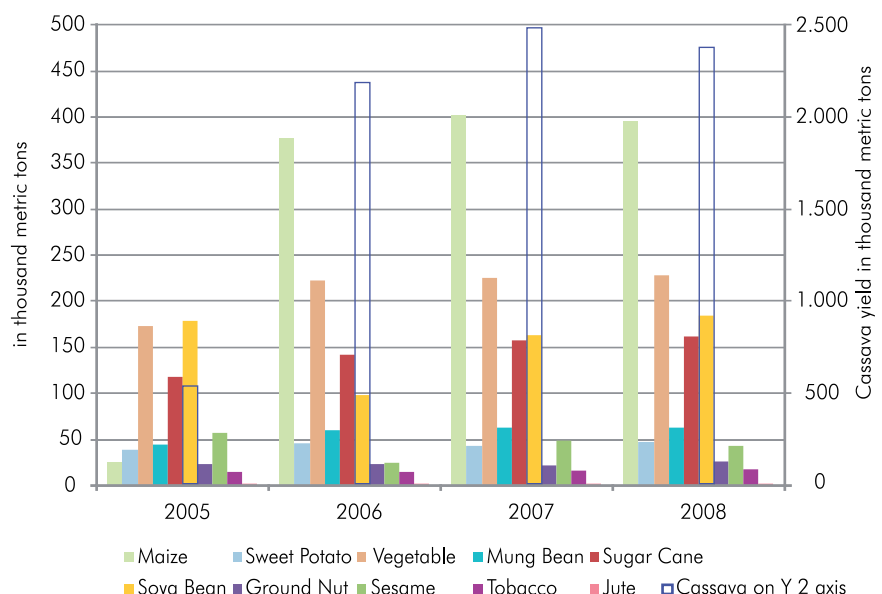


Fig. 2: Total production of major agrarian products 2005 – 2008

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Source: FAOSTAT 2009



Cassava Plantation, Memot Province 2007

Economic trends of agricultural production

Agriculture production is essential to the domestic economy of Cambodia and also is the main employment factor in rural Cambodia. According to FAO findings subsistence consumption absorbs approximately 55 to 60 % of the overall agricultural output (FAOSTAT 2008). As a result, the yearly average GDP per capita in rural areas remains very low around 125 \$ (Sophal 2008), compared to 280 \$ nationwide and more than 350 \$ in urban environment (Worldbank 2008). Rural agriculture is predominantly organized on the basis of smallholder farmer communities and families. Significant productivity gaps separate Cambodia into three major areas, productive south-eastern Mekong floodplains and north-western lowlands along the border to Thailand and less productive uplands regions. Various agricultural reports on Cambodia from 1995 until 2009, show that gross production of agricultural and food products is increasing, rice paddy area and production slightly decreases while the average yield per hectare slightly increases. But Cambodia still lags far behind neighbouring states of the Mekong catchment and remains still very low in international terms. In 1994, agriculture represented 45 to 50% of GDP, while in 2002 it still represents 36.2 % of GDP, respectively (ADB, 2005). Currently, 28.4% of Cambodia's Gross Domestic Product is derived from the agricultural sector (World Bank, 2009). Following a constant increase of 2-3 % over 5 years the agriculture sector growth remains stable mainly due to drought and late floods, as well as a declining fore-

stry production of -9.3% since 2007 (MAFF-Statistics 2009). Paddy production volumes reported by MAFF (2010) increases slowly since 2007 (Fig. 2) compared to the non robust 14.8% growth in 2005.

The area of national maize harvest has dropped over the last five years but yield increased while cereals harvest area production and yield shows no major changes (MAFF 2008). The reported harvest area and the production of roots, tubers and oil is growing, mainly by an increase of yields, except of oil production which was increased by enlarged production area due to large scale commercial agricultural concessions. During the last five years the production of fruits and vegetables has been steadily increased.

Today, the state sector plays the most important role in agricultural production by allocating large scale economic agricultural and forest concessions, while staying directly involved in rubber and oil production, only. There are eight state rubber plantation companies, a joint venture company in Tumring, Kampong Thom Province, and a privatized oil palm plantation in Koh Kong Province near Srey Ambrel. The area of industrial exploited rubber plantation is estimated at 55,900 ha (MAFF 2010).

Throughout Cambodia, the chemical fertilizer and pesticide market is rapidly expanding and their use is extremely common in Cambodian agriculture according to a CEDAC, study conducted in 2004 and another survey by Touch and DeKorte (2008). Two-third of Cambodian farmers interviewed are using pesticides at least for one of their crops especially in the ve-

getable, mung bean and water melon production. Significant pesticide use is also incorporated into dry season rice and tobacco production. The majority of Cambodian farmers believes that increased agricultural production can only be achieved by using more modern inputs rather than using modern inputs adequate and properly. This approach does contribute to increased production, but at higher costs on imported/external inputs especially fertilizer and pesticides. Since these inputs are mainly imported negative effects are frequent on farmers' household income and also relevant to the national economy. It is estimated that Cambodia has spent around \$US 64 million USD on chemical fertilizer and pesticides (FAO 2010).

Rice production pattern

Rice, the major staple food, continues to be the principal commodity in this sector. Officially, the national average yield of rice is estimated to be between 1.65 and 1.8t/ha in the wet season and 2.05 t/ha in total which is low compared to other rice producing countries in the region like Vietnam 4.8t/ha and Lao PDR with 3.29t/ha in 2007 (IRRI 2008). During the last three decades, most of the Cambodian efforts have gone into slow improvements of the traditional smallholder rice farming system.

The average size of agricultural land for more than 2 million Cambodian farm households is about one ha or less than one hectare. In areas identified as high risk in terms of food security loss, the average size is 0.75 ha, (FAO, 1999), along with more than 1 million of the rural population, predominantly in the southern lowlands have no agricultural lands (Sokha et al 2005).

The rice production in 2002 was on the lowest level of production since the 1998 drought year (MAFF 2010). All domestic rice prices constantly increased in the period between 2000 and 2009. In 2007 prices surged and more than doubled within a single year span. Local and regional rice markets seem to be integrated as the prices of rice all roughly follow very similar trends. Data of average farm gate price of paddy in December 2003 shows that in provinces located around Tonle Sap Lake as well as the upper and central plains of Cambodia the price is lower while price of rice in remote provinces

depending mainly on market accessibility and small local production. Besides variety and other agronomic reasons the high geographic variation of rice yields suggests that problems of storage, transport and alternative non farming income opportunities exist as well.

As Cambodia's population is increasing rapidly, and employment opportunities in the non-agricultural sector are still limited, an increasing number of the rural youth are facing problems of landlessness and unemployment. Consequently agricultural landlessness is a serious and prevailing issue to Cambodian poor farmers (CEDAC 2004). Consequentially, rural households operate in a risky environment of regular flood and irregular drought crisis, food insecurity as well as crop and animal losses through diseases caused by a weak and ineffective veterinarian service.

Other staple food

Obvious regional and economical disparities exist in the maize and other staple food sector as well. The main reason is a growing market for maize and maize fodder products in Thailand and excellent trading opportunities in Southern Viet Nam. The map in Fig. 4 is showing the extended growing areas for field crops along the north western Thai border and the south eastern Viet Nam border. Recently maize became the second largest food crop among Cambodian farmers. First between 1980 and 1990 the maize growing area decreased significantly but since the opening to a market economy the maize growing area is conversely increasing steadily from 71,460 in 2000 to more than 200,000 ha 2008 (MAFF 2010). The main maize growing area is located in Battambang province representing more than 61% of the total maize growing area in Cambodian. The average maize yield per hectare with 5.4 t/ha in Battambang is even higher compared to the national average yield of 4.3 ton/ha (FAO-Stat 2008). Reasons for a geographic trading advantage of Battambang and Paillin in comparison to other provinces are strong influences from neighbouring Thailand and Thai organised contract farming of Cambodian farmers.

Production of other staple crops for the national food market has decreased in the last 10 years while production of cash crops increases rapidly



Rice harvest in rural Cambodia, Kampong Cham Province 2009

with the introduction of contract farming and internationally leased agricultural concessions. Production of other significant crops like sugar cane, cassava, cashew and sesame have steadily risen for the last six years (MAFF 2008). The number of permanent cultivated crops like fruit trees and plantation trees increases constantly by innovations like Pitaya (*Hylocereus spec.*) and even grape. Besides rice, banana is still the most favourable crop among Cambodian farmers. Banana is grown all over the country while Kampong Cham remains well known as a major banana export province.

Agricultural concessions in the upland as recent trend

The disparities and recent trends in the Cambodian agricultural sector are mainly driven by land tenure and land policy issues. Recently the national agricultural land policy tends to promote and lease large scale economic concessions rather than to rely on sustainable innovations and improvements

of smallholder farming systems. Consolidated land problems and increased economy, mainly by higher accessibility of local and national markets could lead directly to main investments into permanent crop production such as cashew nut or mango, especially in the Cambodian upland areas in the central and northern parts of the country. Cambodian uplands are defined as all landscape units above 20 m, asl (see Fig 4), and are characterized by a considerable imbalance of population and available land. This situation is different from the surrounding mountainous countries (Thailand, Laos, Vietnam), where upland begins at 300 – 400 m asl. Traditionally upland areas of Cambodia are more or less sparsely populated and economically neglected in comparison with the lowlands and central plains of the country. Upland farming systems are mainly destabilized by external factors, such as forest and agriculture concessions and immigrant settlers. Upland areas have become the major target area for migrating landless

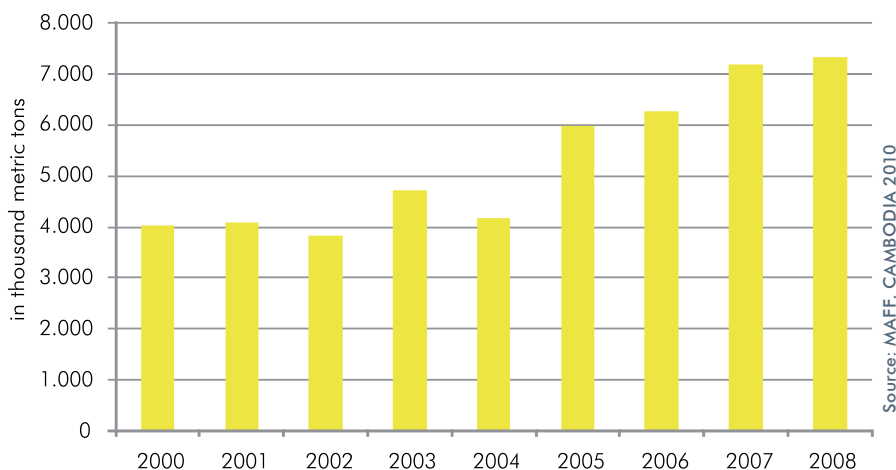


Fig. 3: Total rice production 2000 -2008

young farmers from the lowland.

Agricultural production in the uplands consists mainly of shifting cultivation, slash and burn cultivation, swidden agriculture and rainfed rice production in the valley bottoms, except during the Khmer rouge regime (1975-79), when hill tribes were forced to move into the lowlands to increase the rice production (compare Fig. 1). The long-established variety of annual and permanent crops cultivated on Cambodian upland soils is extremely high, with more than 40 annual species of herbs and spices, legumes, root crops, cucurbits and non-food crops. As many as 20 perennial species e.g. mango, banana, jack fruit, kapok, pineapple, coconut, papaya, tamarind, guava, lime, pomello, sour orange and betel leaf are grown, as well. Species like cashew nuts, mangosteen, sour sop and coconut gain significant importance in area and local revenue. Particularly, the cashew nut plantation area is growing fast since the late 1990s with essential support from Vietnamese traders. Promotion of cashew and other cash crops like coffee as valuable upland crops has been proven to exacerbate short-term deforestation in the Cambodian uplands as local villagers and immigrants from Vietnam and Lao PDR scramble to clear land for the cash crops. Dependence on cash cropping has shown to intensify debt and landlessness of the rural poor in almost all of the Asian developing countries, along with a negative impact on diet and community health in general.

Currently the major threats to upland agriculture in Cambodia are typical land issues like uncertain land ownership and unsecured tenure, expansion of uncontrolled deforestation of concession areas, followed by environmental degradation and increased erosion of fertile topsoil.

Conclusion

The rice-based farming system remains the backbone of Cambodia's agricultural sector. Still rice is the main agricultural product and the country's staple food. Although the Kingdom of Cambodia has undergone dramatic and positive political, economic and social changes since 1993 and increased successfully and constantly the national rice production since 2004, its agricultural economy, especially the smallholder farming system remains vulnerable. Internal threats like the increasing pressure on land resources, due to uncertain land ownership and unsecured tenure as well as external shocks caused by global recession or climate change issues like increased floods and droughts in recent years also pose major challenges to Cambodia's thriving agricultural development.

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