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**Present situation and future perspective of Cambodian agriculture**

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**Abstract**

*In Cambodia, agriculture is still most important to ensure food security at community and national level. Although Cambodia has achieved overall national rice self sufficiency with a very small surplus at the national level since 2000, there are still regional and local deficit regions, in particular in remote rural areas on unsuitable soils. A growing number of families are not able to survive on their own rice production, especially in the areas affected by floods in the Mekong floodplain or irregular severe drought on poor sandy soils in upland areas. Cambodian agriculture is still remarkably undiversified with more than 2.3 million ha planted with rainfed rice only and no significant robust growth in the agricultural sector over the past five years. Today, processes of land occupation for speculation and land use change intensify the challenges in ensuring food security, especially in recently cultivated upland regions. Current population migrations are driven by land occupation and land shortage in the lowlands. Land use planning issues and economically motivated large scale land distributions characterize growing disparities and transitions in the agrarian sector. 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 Cambodian practice. Land and access to land have become the crucial factors in Cambodian agriculture, since 1991, when Cambodia transferred its collective economy into a modern market economy. Nevertheless, predominant agrarian strategies for small farmers as well as for economic investors are exploitations and even over-exploitations of natural resources with little investment into sustainable production. As a result, the Cambodian government's goal to reduce rural poverty will not be successful without a more rapid and sustained agricultural growth including poor and landless small-scale farmers.*

**General Overview**

In Cambodia, agriculture is still most important to ensure 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). As a result of rapidly changing socio-economic conditions since 1990, including relative political stability since 1998, high population growth, opening to market economy and private investment, Cambodia's rural farming population face new challenges like nation wide food security or slightly unsuitable to minor suitable agricultural conditions of former forest areas. Important factors for some of the major achievements in Cambodian agriculture over the last ten years are the introduction of improved High Yielding Varieties promoted amongst others by the International Rice research Institute (IRRI), as well as progressively increased availability of arable land together with increased availability and uncontrolled application of agrochemicals.

In terms of food security, the availability issue of sufficient food has been resolved but the problem of adequate access to land and food is still widespread. Since 2000 Cambodia has achieved overall national rice self sufficiency, although there are still regional and local deficit regions, i.e. on unsuitable soils (WORLD BANK 2005). The aggregate rice production has been stable in the last five years, with a very small surplus at the national level. The national rice production has risen from 3.814.000t or 1.59t/ha in 1970 over estimated 2.500.000t with 1.35t/ha in 1990 to 4.710.000t by achieving 2.05t/ha in 2004 according to IRRI statistics (2005). According to official data national self-sufficiency in rice production was already achieved in 1995 followed by some years of deficiency (NIS 2003). However, there are regional disparities significantly at regional and household level in particular. A growing number of families are not able to survive based on their own rice production, especially in the areas affected by the worst floods in 2000 and 2001 in the Mekong floodplain or irregular severe drought on poor sandy soils in 2004-2005 (CEDAC 2005).

### **Economic trends of agricultural production**

According to FAO (2004) findings subsistence consumption absorbs approximately 60 to 65 % of the overall agricultural output. As a result, the yearly average GDP per capita in rural areas remains very low around 119 \$, compared to 280 \$ nationwide and more than 350 \$ in urban environment. Rural agriculture is predominantly organized on the basis of smallholder farmer communities and family business; furthermore, it sustains important cultural values of the Cambodian Society. Economic growth in the primary sector 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, 2002). Currently, 30.6% of Cambodia's Gross Domestic Product is derived from the agricultural sector (NIS, 2004). Following a constant increase of 2-3 % over 5 years the agriculture sector growth decreased by 2.7 percent from 2002 to 2004, mainly due to drought and late floods, as well as a declining forestry production of -9.3% due to the national logging ban declared in 2001 followed by irregular reduction of illegal logging. (NIS 2003). Crop value added decreased by 5.8 percent in 2003, mainly due to a 6.7 percent decrease in paddy value added and to a lesser extends decreases in maize, cassava, vegetable, tobacco and rubber value added. Paddy production volumes reported by MAFF (2004) also decreased around 6 % while livestock and poultry value added increased a modest 1.2% from 2002 to 2004 compared to robust 11.6% growth in 2001. 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. However, various official agricultural reports on Cambodia from 1995 until 2005, 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. The area of maize harvest has dropped over the last five years but yield increased while cereals harvest area production and yield shows no major changes (MAFF 2004). The reported harvest area and 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 fruits and vegetables production has been increased also. Correspondingly to the crop value added, fisheries value added increased by only 1.3% in 2003 following a 6.8% growth in 2001, due to lower water level in the Mekong catchment recorded in 2001 to 2003 compared to records levels in October 2000 (MAFF 2004).

### **Upland agriculture – the latest trend**

Cambodian uplands are characterized by a considerable imbalance of population and available land. 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. In

absolute figures the average population density is only 8 inhabitants/sq. km in comparison to the overall figure of 76,3h/km<sup>2</sup>. The uplands provide home to only 4.6 % of total population only, but in terms of land area they represent around 37 %. Due to significant population growth and severe landlessness in the lowlands, combined with ongoing demining activities, upland areas have become the major target area for migrating landless young farmers from the lowlands. The major soil types of the Cambodian uplands are leached Acri- and Ferralsols with low base saturation developed from quaternary inland depositions, hill slope pediments and eroded old surfaces of mainly sandstone to clay stone underground in the northern part, while South Eastern and Eastern parts of Cambodia are dominated by old eroded surfaces with young volcanic intrusions from the Pleistocene. Agricultural production in the uplands consisted mainly of shifting cultivation, slash and burn cultivation, swidden agriculture and rainfed rice production in the valley bottoms. Among customary cultivation practices are long-established planting arrangements of diverse species of different heights which set up natural pest control, efficient use of nutrients and general risk minimization of yield, but there are also examples of sites, where swidden fallows have been reduced to unsustainable levels of less than 3-4 years, mainly due to natural population growth. Simultaneously these techniques reduce degradation pattern and soil erosion. However, in some areas like Ratankiri Province the national concession policy as well as migration and natural population growth is gradually eroding the sustainability of indigenous land uses by increasing land scarcity. The traditional 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 reaching significant importance in area and local revenue. Especially cashew nut plantation area is growing fast since the late nineties with essential support from Vietnamese traders. Promotion of cashew and other cash crops like coffee as valuable upland crops has proven to exacerbate short-term deforestation in the Cambodian uplands as local villagers and immigrants from Viet Nam 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. In addition, the environmental sustainability of cash crop plantations is very questionable and "may trigger further environmental degradation" and risk food security problems (DE KONNICK, 2003).

Although the national upland policy tends to differ in main strategies to promote smallholder sedentary agriculture as the principal upland farming system on one hand, while offering most fertile and productive land to large-scale plantation agriculture by donation of large commercial concessions on the other. By now, agricultural and converted forest concessions cover around fourteen percent of the total area with still growing figures, whereas many of them are located in the upland areas (NIS 2004). For example, there is fast growing interest to convert forest or protected land into economic plantations for cassava, soybean, rubber, cashew and coffee production in the eastern provinces around Snoul, Mondulkiri, Stung Treang or Banlung, even though most of the provinces was allocated for protected forest areas or commercial forest concessions. 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.

### **Agricultural progress and recent development trends**

Today, trends and processes in land grabbing for speculation 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 are the predominant factors for

population distribution. Recent migrations are driven by land occupation and land shortage in the lowlands. Land use planning issues and economically motivated large scale land distributions characterizes 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 practice. 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 (c.p. BERNSTEIN & BYRES 2001). 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 Cambodian agriculture. Cambodian agriculture is still focused 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 mungbean. The oilseed crops include groundnut and sesame. Further, among commercial crops, sugarcane followed by jute and tobacco is commonly grown (CHANDEL & PARODA 2000). Vegetables mostly occupy only village gardens and small fields around the houses 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 of rice and the linguistic inclusion of the Khmer word for cooked rice as a way of describing all meals.

According to O'BRIEN (1999) 86% of the total rice cropping area in Cambodia is rainfed lowland rice, only 8% is dry season rice, 4% is floating rice and 2% is upland rice. Lowland rice with barely more than one crop per year represents the most abundant rice cultivation system which is characterized by small banded non homogeneously flat rice fields that are almost entirely dependant on rainfall and surface runoff for 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. Traditional rice agriculture in Cambodia has been providing some potential for future sustainability of the agricultural sector. Several suitable rice varieties for specific growing conditions have been derived by Cambodian farmers over thousands of years. Recent surveys by the International Rice Research Institute (IRRI 2005) have identified over 2000 different strains and local varieties of rice used in Cambodia. Long-established rice agriculture combined rice-fish aquaculture uses the diversity of rice and fish in the lower Mekong basin. They serve not only for the enlargement of rice yields, but also for a traditional source of protein by direct harvest of several natural resources such as fish, frogs, and insects for local consumption.

Although Cambodian agriculture contributes overall the dominant quantity to the GDP and is still the predominant source of income and rural livelihood, there is no significant robust growth in the agricultural sector over the past five years. The still existing year-to-year fluctuations reflect high vulnerability to ecological and physical conditions like weather, soils and land degradation. Concurrently it suggests insufficient investment into the agrarian sector. Cambodian agriculture is still remarkably undiversified since years with more than 2.3 million ha planted with rice only. Nevertheless, predominant agrarian strategies for small farmers as well as economic investors are exploitations and even over-exploitations of natural resources with little investment into sustainable production. As a result, the Cambodian government's goal to reduce rural poverty will not be successful without a more rapid and sustained agricultural growth including poor and landless small-scale farmers.

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