



Environmental and socio-economic impacts of institutional reforms on the agricultural sector of Vietnam

Land suitability assessment for Robusta coffee in the Dak Gan region

D. D'haeze^{a,*}, J. Deckers^a, D. Raes^a, T.A. Phong^b, H.V. Loi^b

^a *Laboratory for Soil and Water, Institute for land and Water Management, Katholieke Universiteit Leuven, Vital Decosterstraat 102, B-3000 Leuven, Belgium*

^b *National Institute for Agricultural Planning and Projection, 61 Hang Chuoi, Hanoi, Viet Nam*

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Abstract

After the reunion of North and South Vietnam in 1975, the area under small-holder, irrigated cultivation of Robusta coffee increased by a factor of 10 in the Central Highlands. The actual coffee acreage in Dak Lak province is estimated to be over 260,000 ha, representing 60% of the national production, with 405,000 t year⁻¹ for the world market. Vietnam is presently the second largest exporter worldwide and expansion is still going on. In cooperation with the National Institute for Agricultural Planning and Projection (NIAPP), a 5-year development project "Land Evaluation for Land Use Planning and Development of Sustainable Agriculture in the Central Highlands of South Vietnam" was set up, with a goal of diagnosing the sustainability of the rapidly expanding Robusta coffee sector in Central Vietnam. This paper describes the reasons for this quick expansion and investigates the consequences in ecological and social terms. This is done based on a large-scale natural resources inventory, land suitability analysis for Robusta coffee and participatory rural appraisal combined with secondary statistical records from Dak Gan commune. It is representative of the Central Highlands in terms of geomorphological and pedological variability, ethnic identity and with regard to trade-offs between forest conservation and coffee expansion at the cost of available water stocks. Local institutional reforms in the eighties have accelerated coffee expansion in three ways: demographic resettlement, socio-economic liberalization and legislation towards land ownership. Interaction between these three factors has induced a second spontaneous migration flow towards the Highlands in the nineties. Forest area declined by 19% and was converted to coffee plantations, encouraged by the high economic return of this cash crop. The results indicate that this has happened in a haphazard manner and led to a mismatch between the present land use pattern and the natural resource base. Unsustainable land use manifests itself at four levels. (i) The areal limits for sustainable coffee production have been exceeded. (ii) As a consequence over 74% of the present coffee stand is situated on sub-optimal land units. (iii) An excessive coffee area in combination with over-irrigation is likely to deplete groundwater resources. (iv) And paradoxically 24.3% of suitable soils for coffee production is still under forest in Dak Gan. In turn this leads to large-scale environmental and socio-economic decline: soil erosion, water scarcity and social inequity resulting in conflicts between migrants and the indigenous tribes. Besides local reforms, world trade liberalization changed the global coffee market in the late nineties from a regulated system to a free trade

* Corresponding author. Tel.: +32 16 32 97 21; fax: +32 16 32 97 60.

E-mail address: davedhaeze@hotmail.com (D. D'haeze).

market. This fostered global oversupply, which in combination with a stagnant coffee demand suppressed the world market price. Since Vietnam became the second world producer of Robusta, prices have declined by a factor of 3, not only affecting the local sector but households worldwide.

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1. Introduction

1.1. The history of coffee production in Vietnam

Coffee was introduced in Vietnam by French missionaries in 1857. In the 1920's, suitable coffee growing areas were discovered in the Central Highlands. The acreage increased until 1945 to approximately 10,000 ha, mainly in Dak Lak province. Annual production was about 4500 t, most of which was exported to France (DSI, 1998). After the division of North and South Vietnam (1954), the northern government took over French plantations and formed 24 state co-operatives. Following reunification coffee production more than doubled to reach 12,000 t in 1980 (DSI, 1998). Between 1980 and 1985 coffee area and production were stagnant and yields were low (1.0 t ha^{-1}). At present Vietnam is the second producer of coffee worldwide after Brazil. The actual coffee area in Dak Lak province, is estimated to be over 260,000 ha representing 60% of the national coffee production (Fig. 1). Vietnam produces two varieties – *Coffea canephora* Pierre ex Froehner var. *robusta* and *Coffea arabica* L. – each requiring its specific ecological conditions. The Hai Van mountain pass, reaching an altitude of over

1000 m (at $16^{\circ} 14' \text{N}$) splits Vietnam into two different climatic zones: southern Vietnam belongs to the hot and wet tropics, suitable for Robusta cultivation, while the northern part with higher altitudes and cold, humid winters is suitable for Arabica cultivation (Nhan, 2001). In Vietnam 90% belongs to the Robusta variety while at world scale Robusta represents approximately 20% of the total coffee production.

1.2. Demographic, socio-economic and land use reforms in Vietnam

The fact that in the nineties coffee production helped to fuel a 12% average economic growth rate in Dak Lak province should be framed in a policy of resettlement on the one hand and spontaneous migration flows to the highlands on the other hand. In the last century the population distribution in the Highlands has rapidly changed. In 1943 local hill tribes made up 95% of a total of 80,000 inhabitants in Dak Lak. During the French and American wars in the fifties and sixties there was a steady flow of Ethnic Vietnamese or Kinh, mainly refugees from North Vietnam, towards the province (Human Rights Watch, 2002). After the war (1975) the central government in Hanoi embarked on a major resettlement campaign convincing lowland farmers residing in relatively poor and densely populated northern and central coastal provinces to move towards the Central Highlands. In total 586,010 people were encouraged to migrate to 225 land development centres in Dak Lak (Ahmad, 2001). Besides official migration flows, spontaneous movements were recorded in the late eighties and nineties (350,000 migrants). Infatuated by the high economic return of Robusta coffee, the period of sharpest increase in spontaneous migration was between 1991 and 1995. These push and pull mechanisms have drastically changed the ethnic distribution of the indigenous population. With a constitution of 61% in 1978, ethnic Vietnamese or Kinh

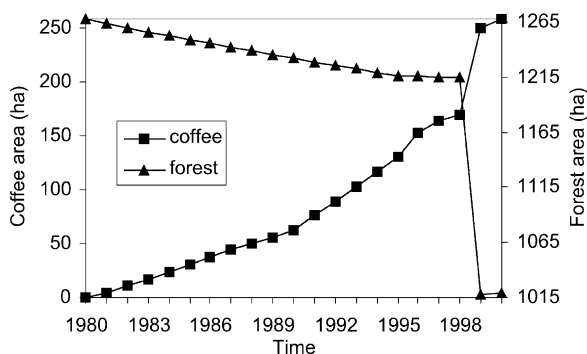


Fig. 1. Expansion of the coffee area and decline of the forest area in Dak Lak province (Statistic division, 2000).

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