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## Impact of the Use of Exotic Compared to Local Pig Breeds on Socio-Economic Development and Biodiversity in Viet Nam

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### Abstract

Viet Nam owns a wide variety of local pig breeds, being long time the basis of pig production. The present pig population was strongly influenced by an influx of exotic pig breeds.

This contribution describes Vietnamese local breeds, their origin and distribution, and assesses the influx of exotic pig breeds to Viet Nam. Data were collected between 10/2004 and 2/2005 through literature reviews/key person interviews, within a global study on status, impacts, and trends from the exchange of breeding animals, implemented by the Institute of Animal Production in the Tropics and Subtropics, University of Hohenheim, commissioned by BMZ/GTZ, and supported by FAO.

The Vietnamese pig population developed under the influence of migration, trade, and colonisation from neighbouring China, Laos and Cambodia. In the 20<sup>th</sup> century, the Vietnamese government promoted specifically higher yielding local breeds, the Mong Cai breed prevailing as major sow line. Composite genotypes evolved, through uncontrolled crossbreeding/scientific research. Exotic pigs have been introduced from the US and Europe since the 1920s. Over time, gene flow was driven by French colonial rulers, American armed forces, the socialist government, and since 1986 (economic liberalisation) commercial breeding companies and developmental projects. Decentralisation of the breeding system together with a developed Artificial Insemination network supported the spread of exotic pigs especially at smallholder level.

Crossbreeding and replacement caused a severe decrease of indigenous breeds, in 2002 accounting for 26 % of the pig population. Of 14 local breeds, 71 % were in vulnerable/critical state or facing extinction.

Local breeds produce in low-input systems, fulfilling multiple functions for smallholder households. They yield lower performances than exotics, but require lower production inputs, and have favourable adaptation traits. The genetic distinctness and greater genetic heterogeneity of Vietnamese opposed to European breeds was shown. Local breeds are a source of promising alleles, possibly significant for future genetic improvement and of unpredictable economic value.

Results show that gene flow has been a net influx of exotic pigs to Viet Nam, accelerating in the last decades. The impact of a possible loss of local breeds on biodiversity, and on the socio-economic situation of resource-poor smallholders is discussed.

**Keywords:** Biodiversity, gene flow, local pig breeds, smallholder production, Viet Nam