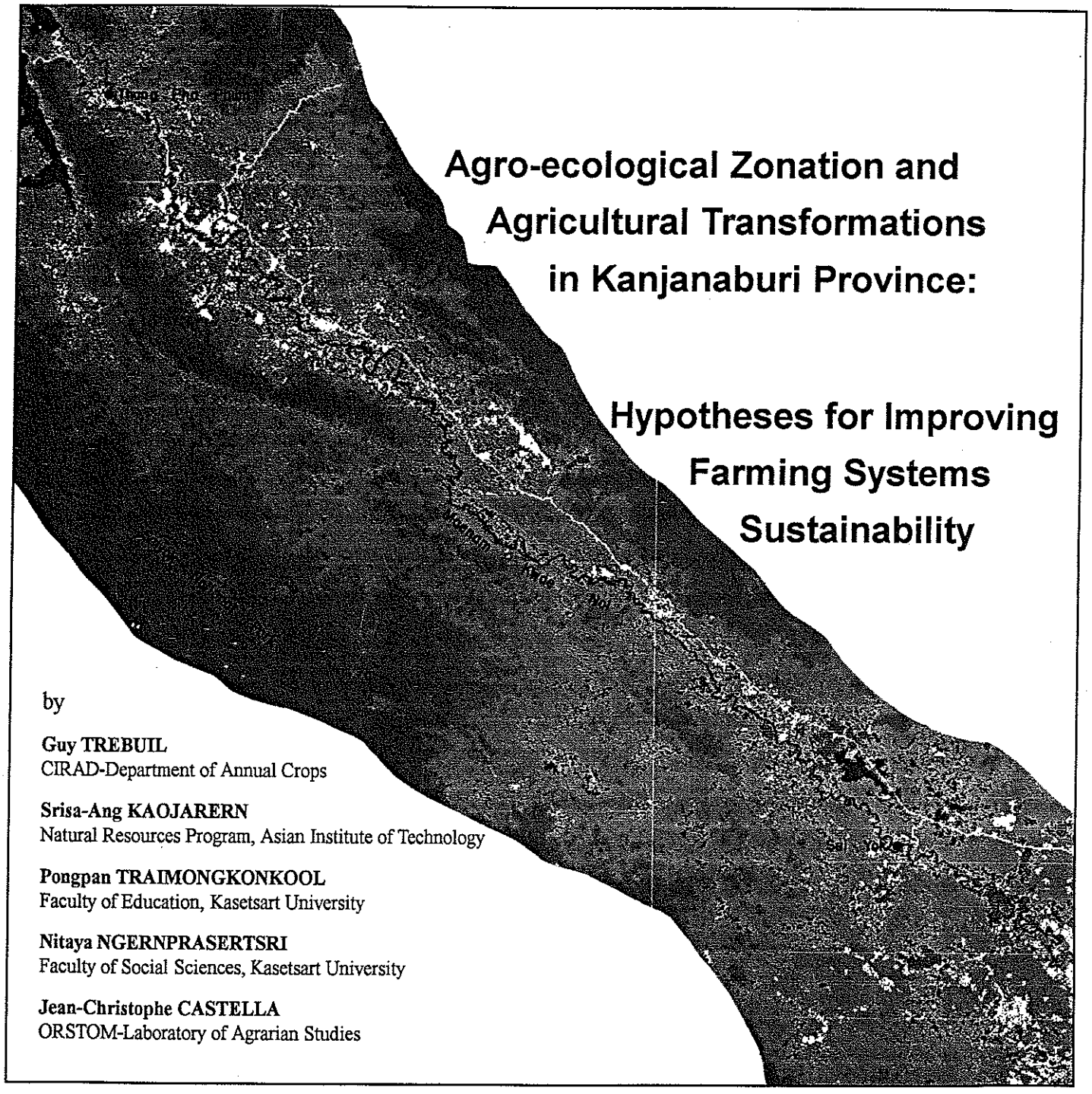
DYNAMICS OF AGRARIAN LANDSCAPES IN WESTERN THAILAND



Agro-ecological Zonation and Agricultural Transformations in Kanjanaburi Province:

Hypotheses for Improving Farming Systems Sustainability

by

Guy TREBUIL
CIRAD-Department of Annual Crops

Srisa-Ang KAOJARERN
Natural Resources Program, Asian Institute of Technology

Pongpan TRAIMONGKONKOOL
Faculty of Education, Kasetsart University

Nitaya NGERNPRASERTSRI
Faculty of Social Sciences, Kasetsart University

Jean-Christophe CASTELLA
ORSTOM-Laboratory of Agrarian Studies

DORAS PROJECT
Central Laboratory
KASETSART UNIVERSITY
Kamphaengsaen Campus
NAKHON PATHOM 73140
THAILAND

NATURAL RESOURCES PROGRAM
THE SCHOOL OF ENVIRONMENT,
RESOURCES AND DEVELOPMENT
Asian Institute of Technology, G.P.O. Box 2754
BANGKOK 10501
THAILAND

SUMMARY

The spatial and chronological agro-ecological zonation is a key tool used to achieve the main objectives attributed to the initial diagnostic phase of the so-called Development-Oriented Research on Agrarian Systems (DORAS) approach, which are:

(i) to *identify* and *prioritize* factors and conditions (bio-physical as well as social and economic ones) that are *determining the choice and evolution* of various types of family-based Agricultural Production Systems (APS) in the area...

(ii) to understand how these factors and conditions are involved in the recent and current agro-technical *transformations* of the regional agrarian system (AS) landscapes,

(iii) to reveal the extent of the process of socio-economic *differentiation* among the local APS and understand its origin and mechanisms.

Establishing such a diagnosis is not only a matter of identifying constraints and potentialities for a series of homogeneous zones that will be based, as it is usually done, on a description of the, mainly bio-physical, conditions. At the end of a DORAS diagnosis, one should also *be able to explain how to intervene* on these different key factors and conditions in order to steer the agricultural development process in a more sustainable and less unequal way.

Understanding the dynamics of the transformations which are currently at work is then essential. A pertinent zonation must elucidate the functioning of the AS, which is a product of the recent agrarian history.

This paper presents the results of such a spatial/historical analysis carried out in 1991/2 in Western Thailand by an interdisciplinary team of agronomists, remote sensing and social scientists.

Two main transitional phases between three kinds of AS were identified and analyzed along the rapidly advancing cultivated frontier in Kanjanaburi province. A first major change occurred from a post-second world war system, still dominated by forest ecosystems because of low population and difficult access, to a second type of AS system based on the production of annual cash crops which is still dominating since the early seventies. Later, the recent appearance of a third type of AS in which perennial crops will play a major role was also diagnosed. In the near future, this could lead to the domination of a new AS, in which cultivated trees and animal husbandry would play more important functions.

Elucidating these transitional phases of the regional agriculture led to the understanding of the extent, origins and mechanisms of the farmer differentiation process in the area under study. Such prior scientific knowledge on regional agrarian realities was used to implement on-farm research and development activities at farm and plot levels.