

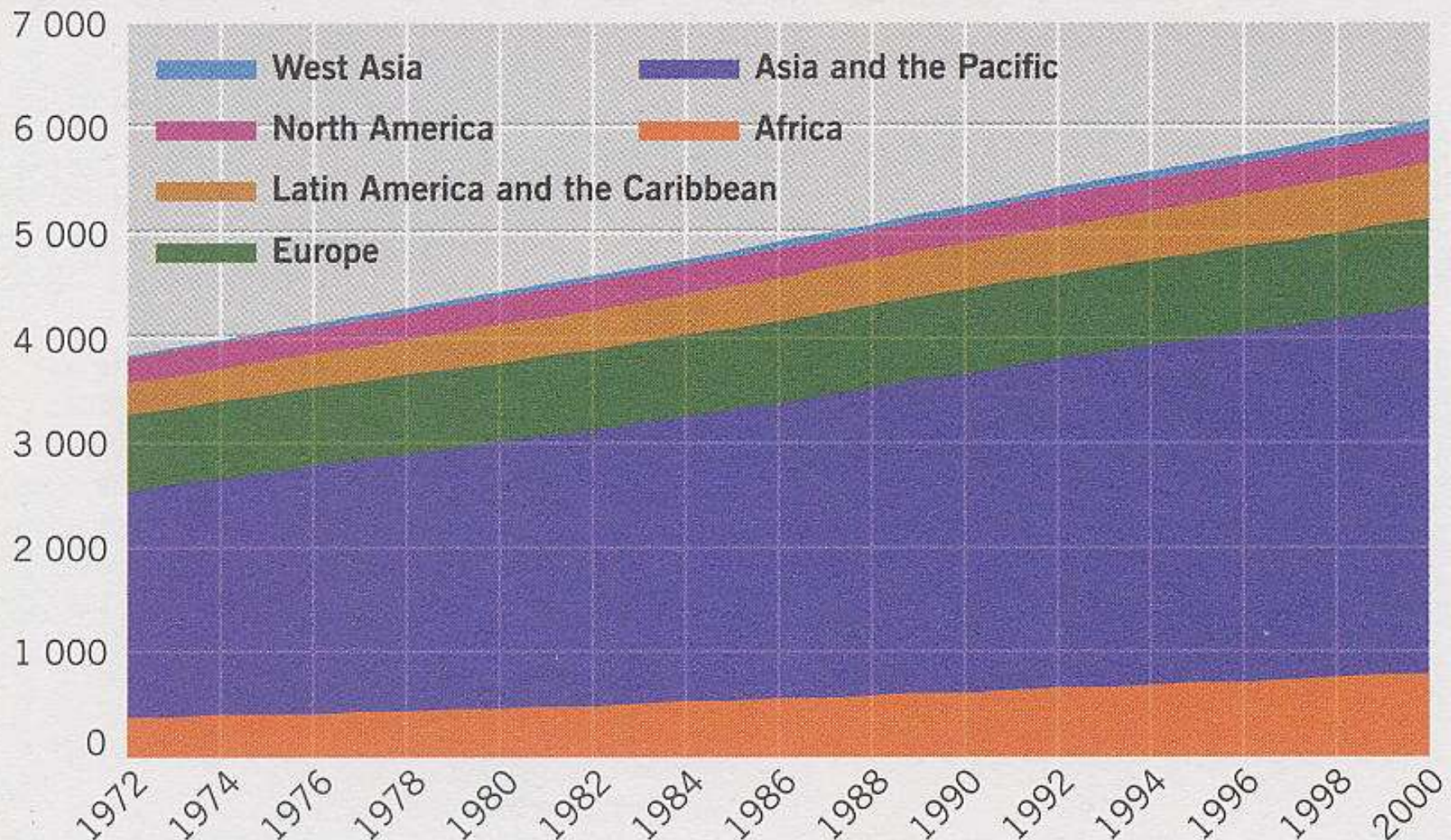
TOWARDS SUSTAINABLE LAND USE IN ASIA

IGU-LUCC Conference, Vladivostok

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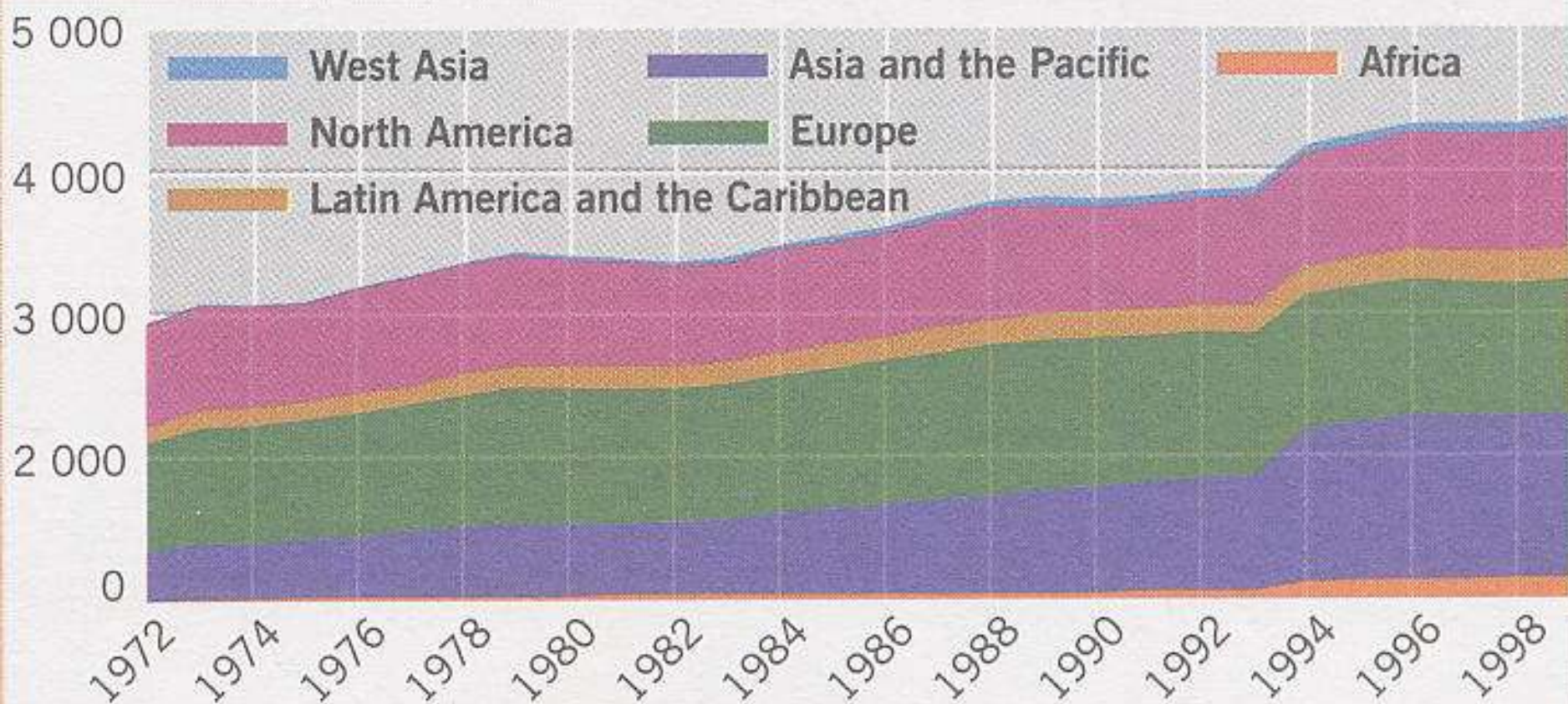
World population (millions) by region, 1972–2000



World population is currently growing at 77 million a year, with two-thirds of the growth in Asia and the Pacific

Source: compiled from United Nations Population Division 2001

Total energy consumption (million tonnes oil equivalent/year)



Source: compiled from IEA 1999 and United Nations Population Division 2001

提 言

陸域 - 縁辺海域における自然と人間の 持続可能な共生へ向けて

平成20年（2008年）6月26日

日 本 学 術 会 議

地球惑星科学委員会



Sustainable Land Use in Asia (SLUAS)

Science Council of Japan issued a proposal entitled “Towards Sustainable Co-existence of Nature and Human on the Land and the Coastal Sea” in July 2008. SLUAS is part of the effort to realize the proposal focusing on the use of land.

Sustainable land use is almost synonymous to sustainable society in Asia. It is essential for the survival of Asia, if not the whole human society, but appears almost unachievable if one looks at the many difficult problems the world now faces. SLUAS, a new JSPS (Japan Society for Promotion of Science) project starting in April 2009, is one of such initiatives.

Objectives and Nature of SLUAS

The objectives of the project are

- a) to show the desired picture of land use under the restrictive conditions of the age of global environmental crises and the way to it
- b) to provide the society with the insights that are useful for the solution of the global problems and with the atlases and other forms of information materials that are of use.

It is a project of wholistic nature, emphasizing consolidation of **global information base**, promotion of **integrative research** and improvement of related **policy** and **education** dealing with Asia, with particular focus on Far-east Russia, India, China and Japan.

Major Activities of SLUAS

- a) Historical information bases**
- b) Extensive field surveys**
- c) Symposia**
- d) Atlas publication**
- e) Outreach**
- f) Research**

Fact-finding Comparative Surveys

Extensive field surveys will be carried out in order to grasp long-term (about a century, or period of modernization and economic development) land-use changes, their mechanisms and the related problems in Asia accurately. The surveys fully use the map resources, satellite data and GPS. The project also constructs geographic land-use information bases based on both new and old maps and statistics of various kinds and the information collected through field surveys, and analyse them. These are carried out under the framework of regional comparison, so that better understanding of such large area as Asia can be achieved and the environmental problems, large-scale hazards and food problems related with land use in Asia will be handled more properly and better proposals can be made to solve these problems.





















「地図にない湖」イメージ図





親松排水機場の概要



亀田郷は信濃川、阿賀野川などの川に囲まれた低平な輪中地帯で、日本海の平均潮位よりも低い土地が約2/3を占め、潮位の影響で水に浸かってしまうことがあり、かつては「芦沼」や「地図にない湖」と呼ばれていました。

そのため、国営阿賀野川農業水利事業 (昭和16～48年度) で造られた栗ノ木川排水機場 (昭和23年完成) や、昭和39年の新潟地震で栗ノ木排水機場が機能低下をおこしたことから、新たに造られた親松排水機場を中心に排水改良や農業基盤の整備が行われてきました。

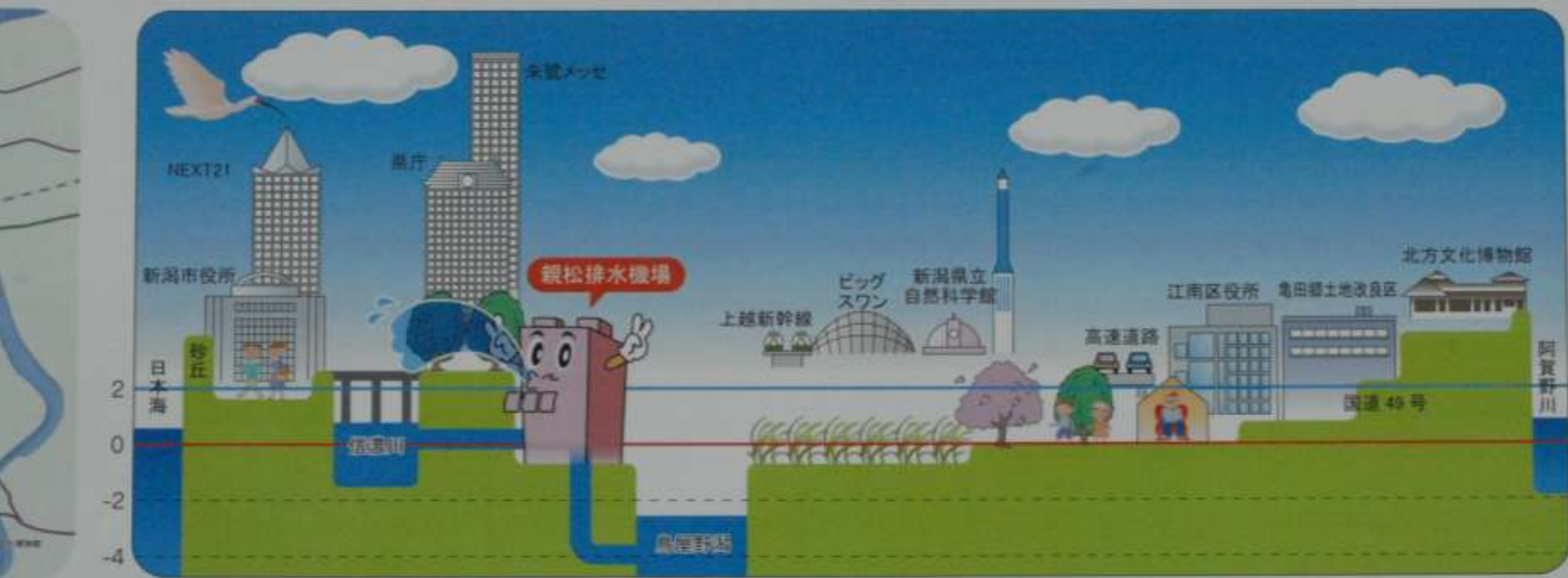
その後、国営亀田郷農業水利事業 (平成14～20年度) により更新された親松排水機場が地域排水の役割を引き継ぎ、水土里豊かな田園都市として飛躍的な進展を遂げるとともに、安心して豊かな故郷づくりに貢献しています。



「地図にない湖」イメージ図



断面図 (日本海～信濃川～鳥屋野潟～阿賀野川)



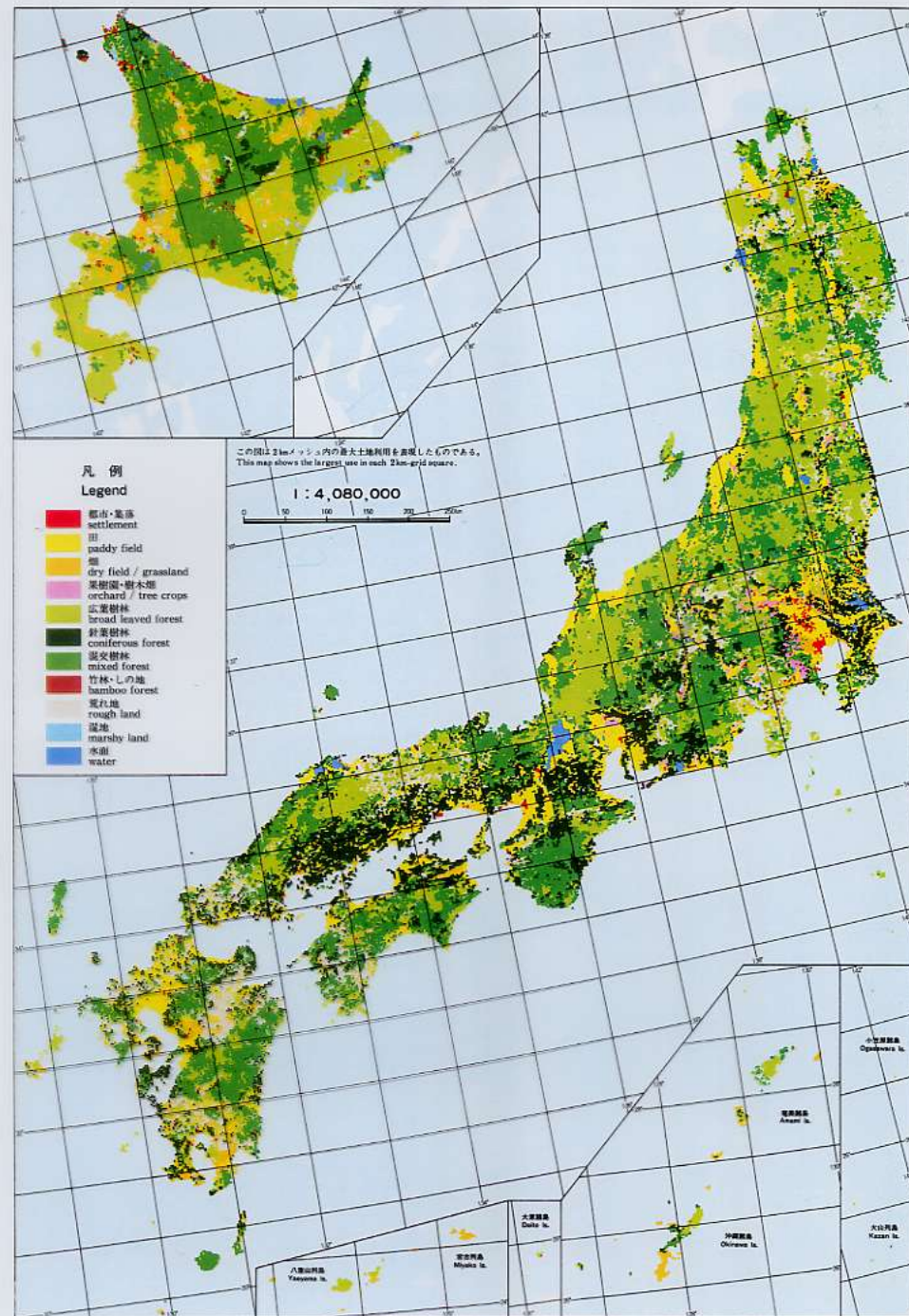
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断面図（日本海～信濃川～鳥屋野潟～阿賀野川）

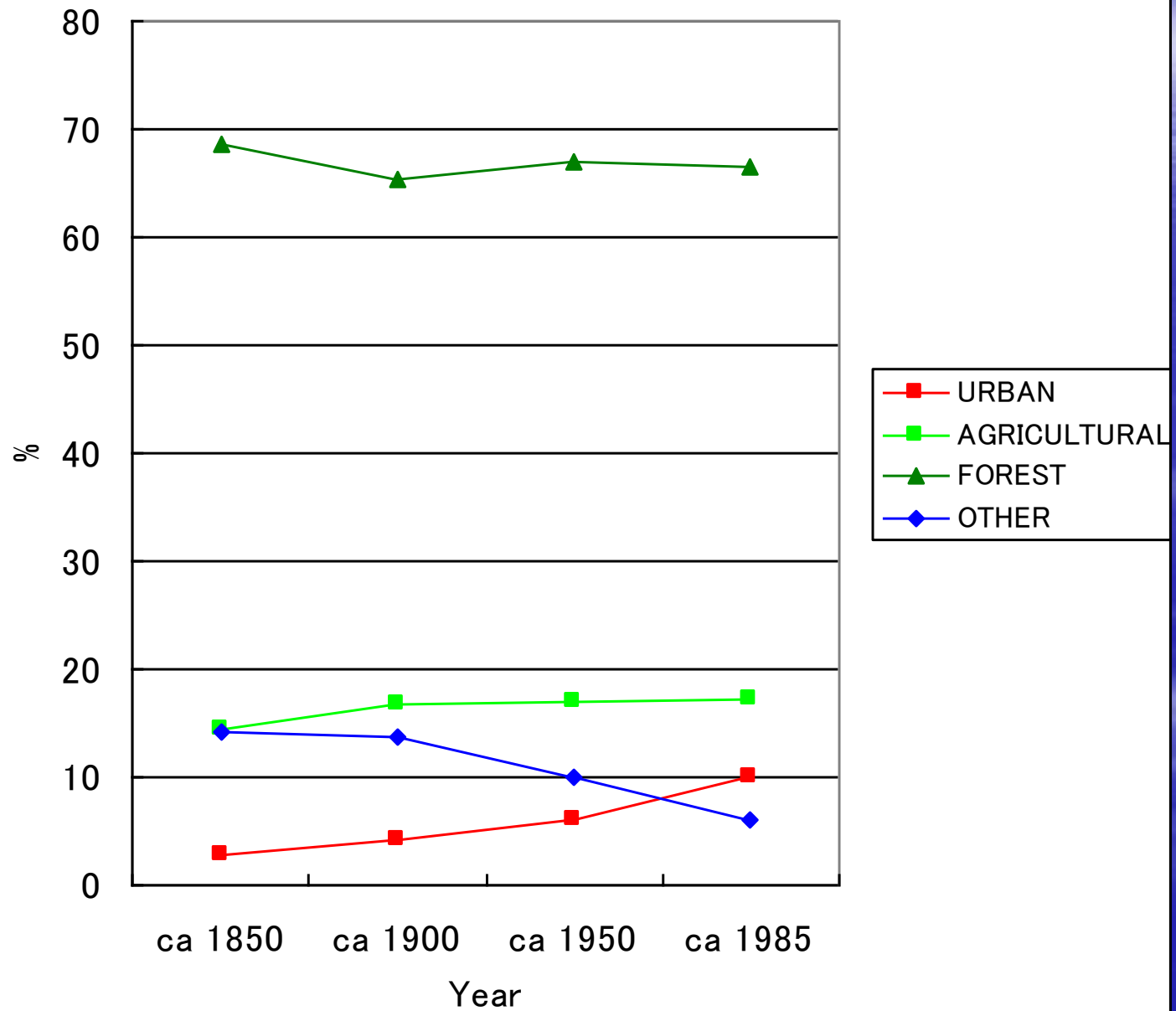


Map Making, Re-construction and Analyses

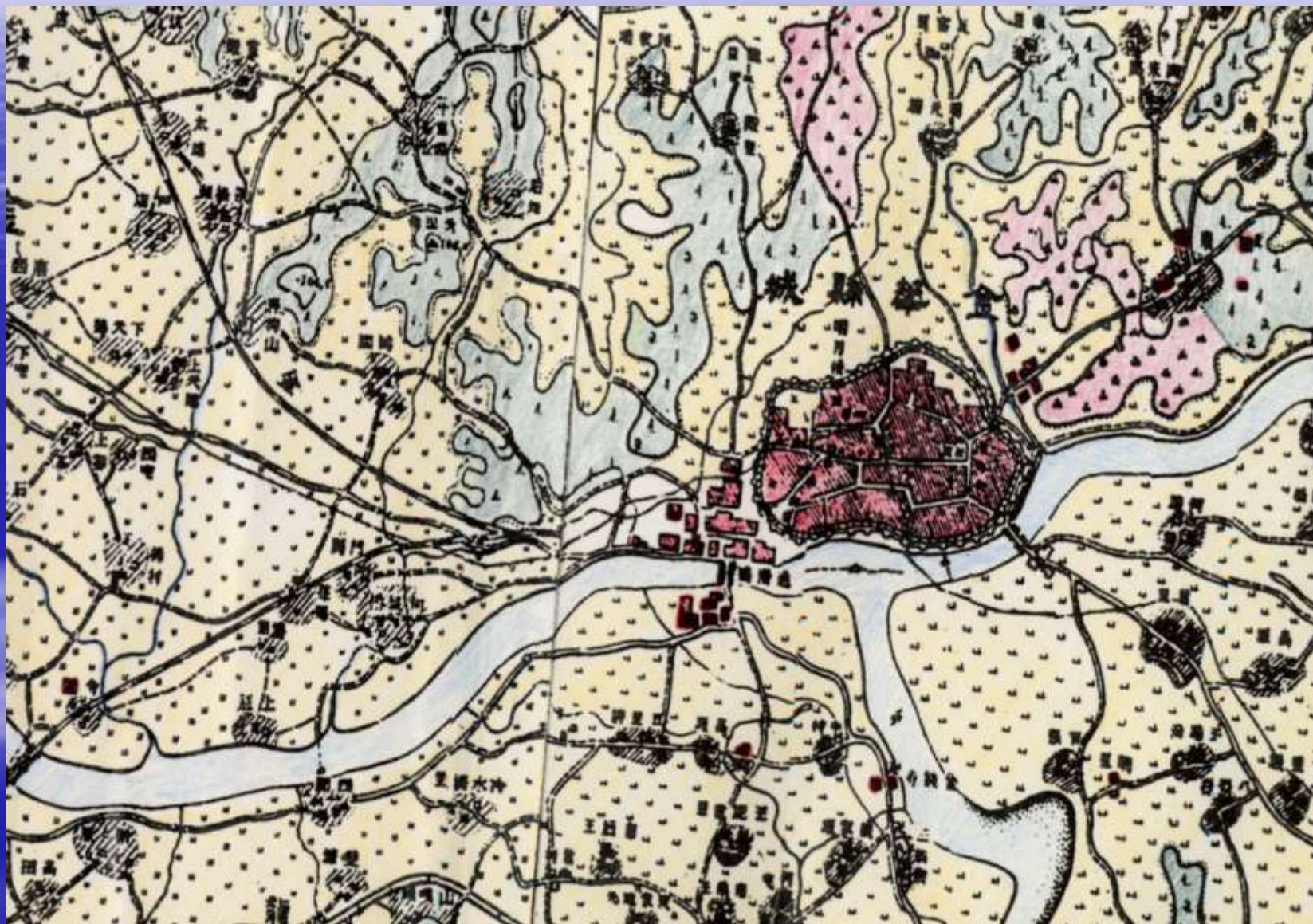
Land use ca.1900



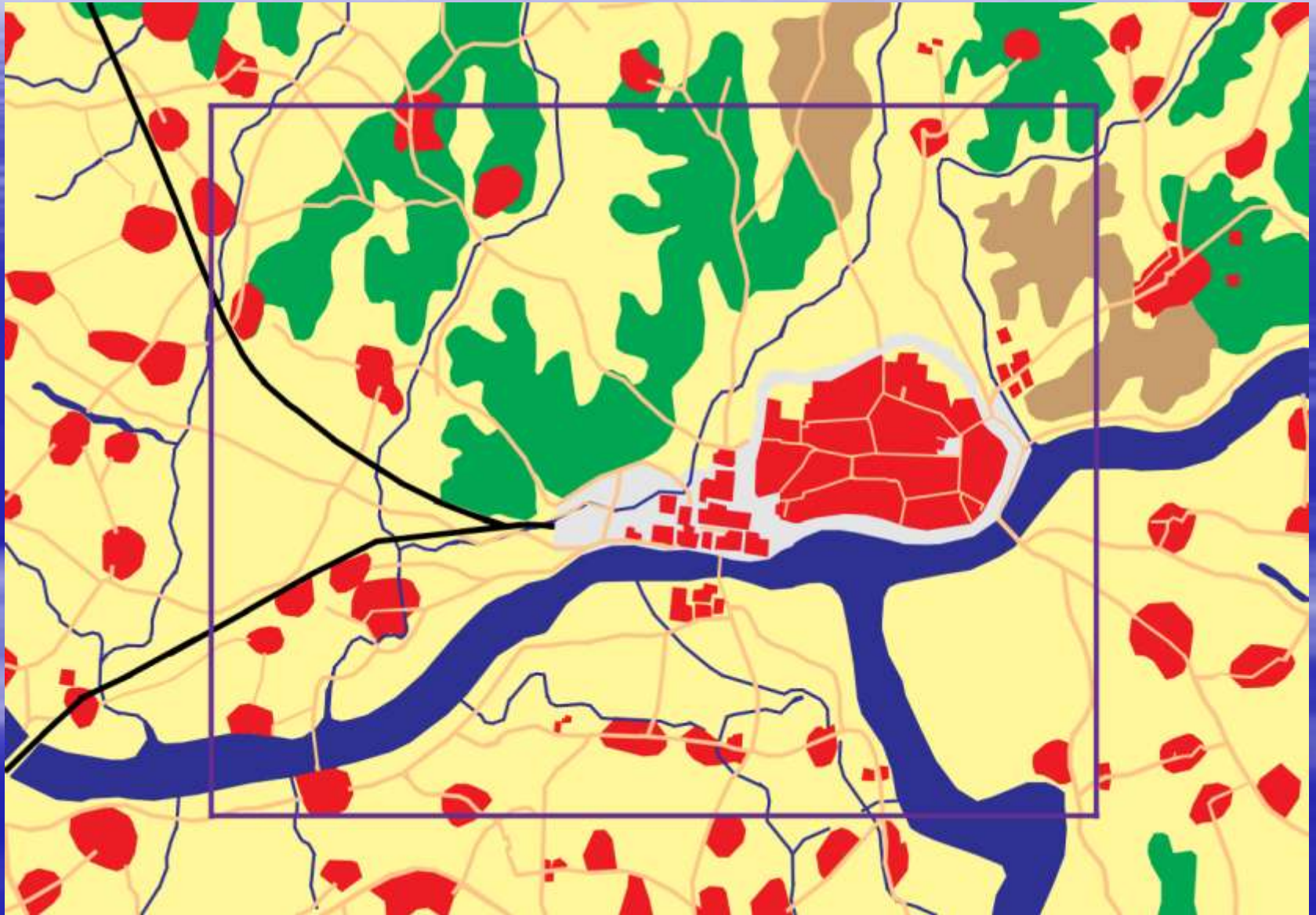
Change of Land Use in Japan



Land Use ca. 1930, Jinhua



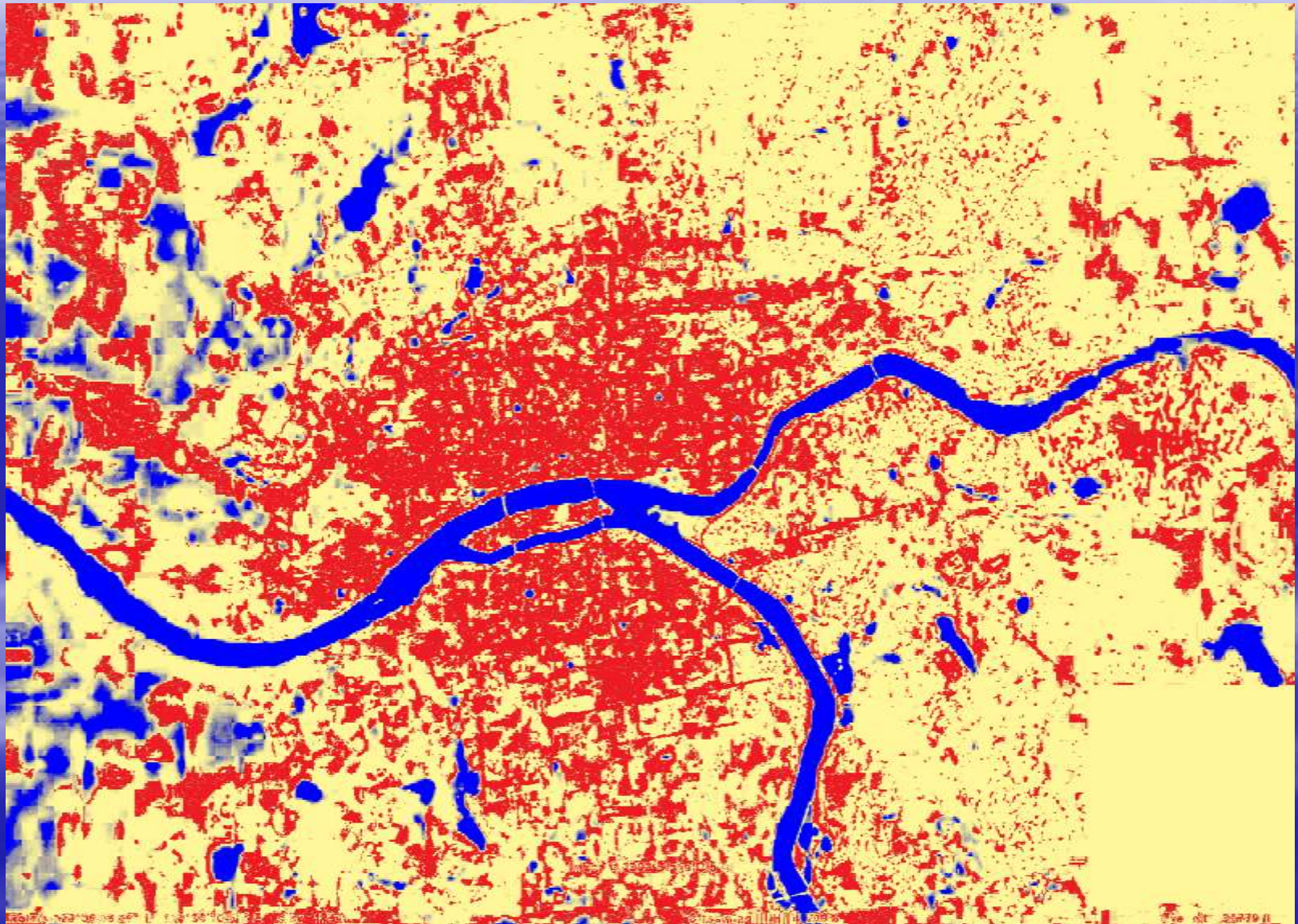
Land Use ca. 1930, Jinhua



Landsat ETM+ Image ca. 2000, Jinhua



Urban Land Use ca. 2000, Jinhua

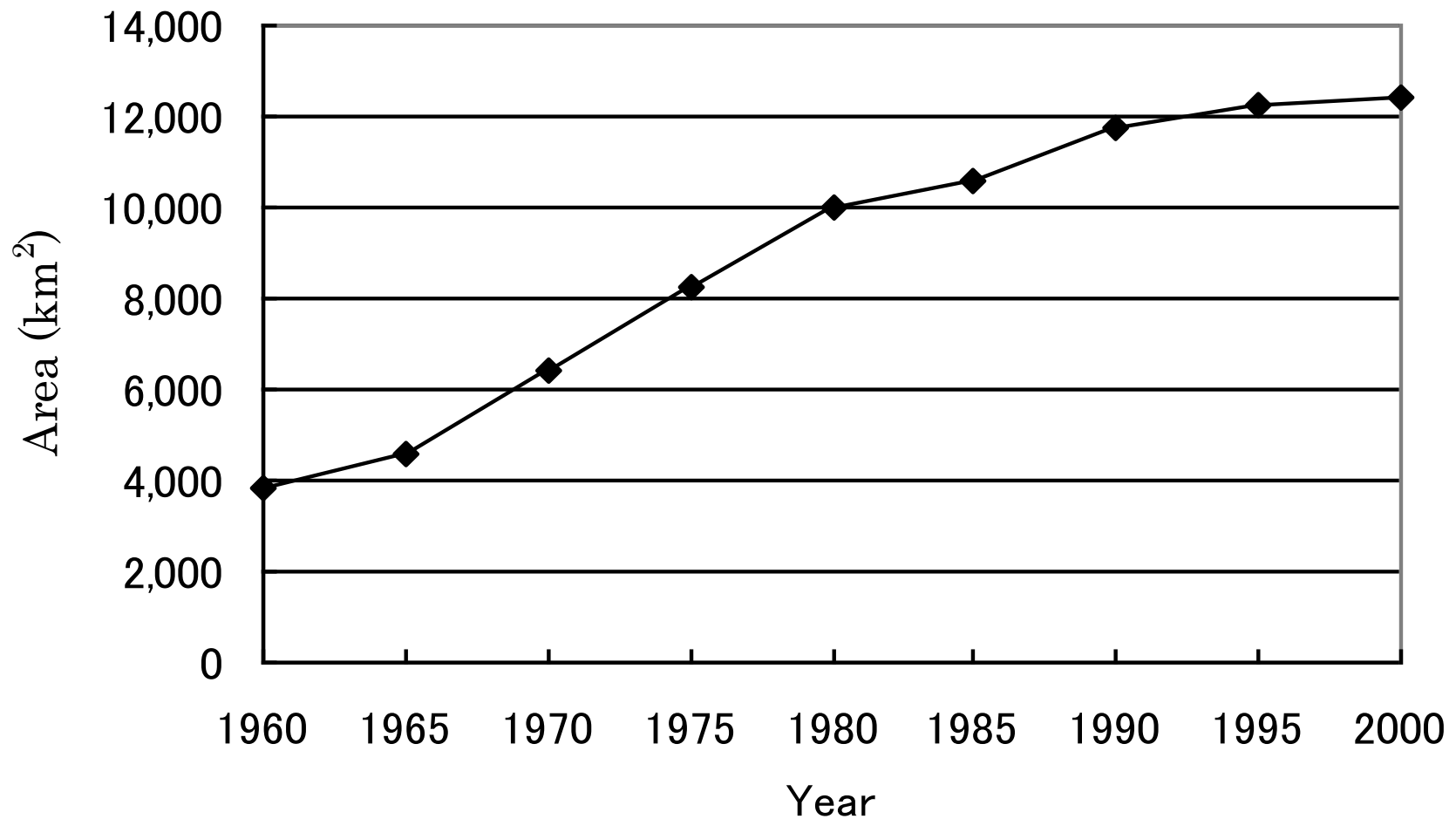


Historical information Bases

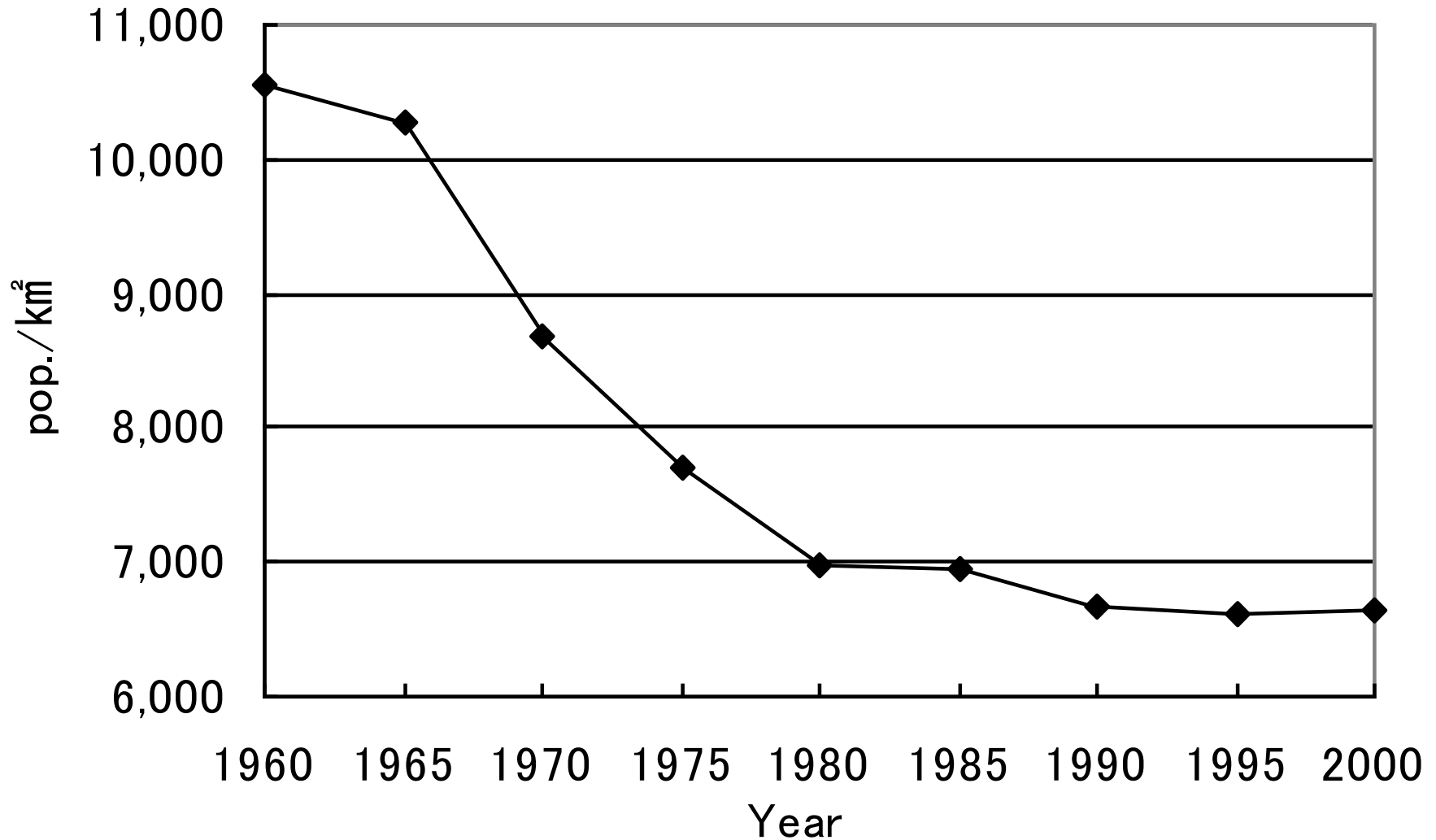
The project constructs historical land-use information bases based on both new and old maps and statistics of various kinds and the information collected through field surveys, and adds these products to the existing information bases retained by the writer. These are carried out mainly for Japan and parts of China, and the bulk of the database scheme is left in the hands of the corresponding country or region. It is noted that information base scheme should be pursued together with scientific research related with it.

Statistical Analyses

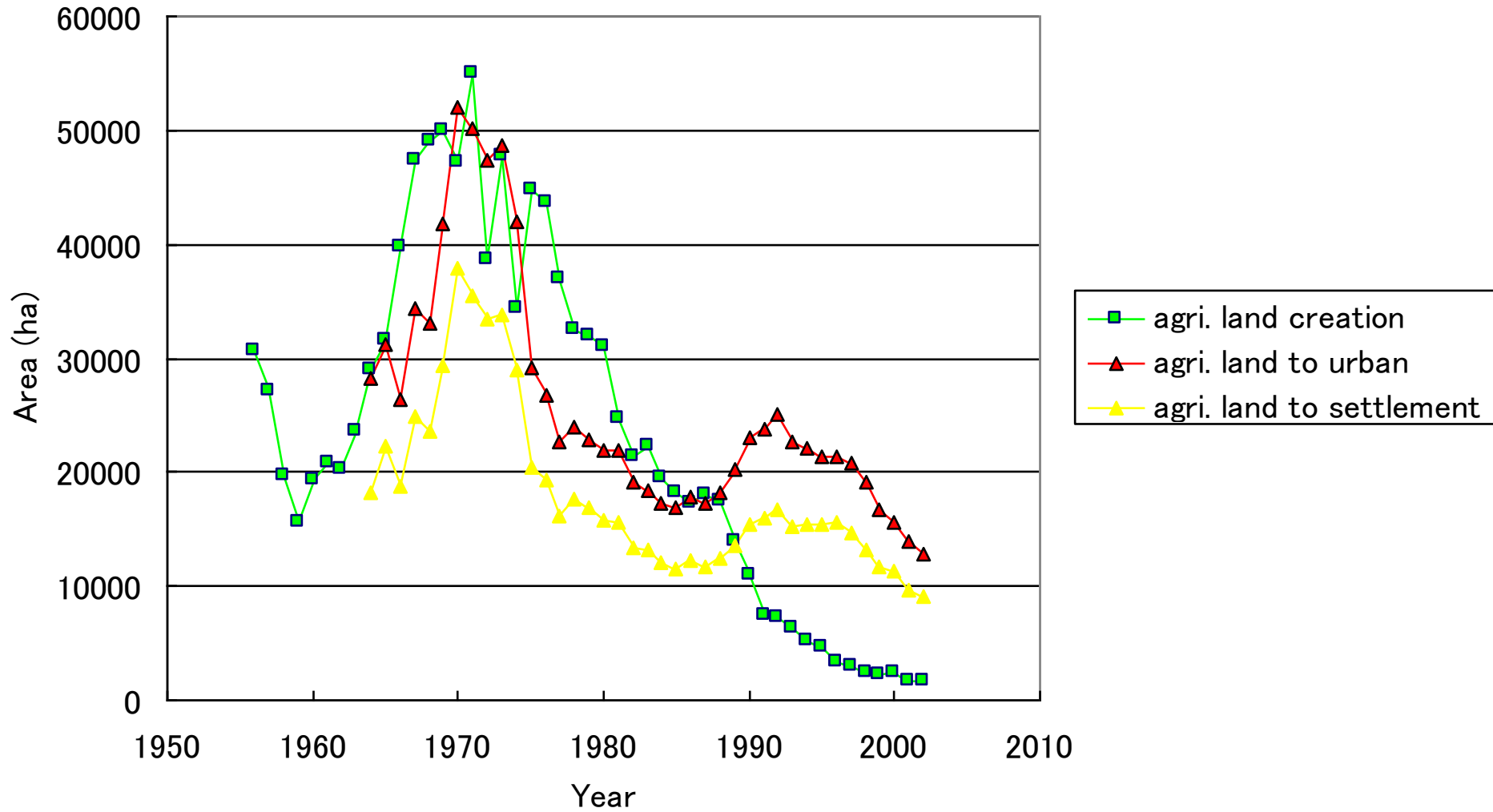
Change of DID Area



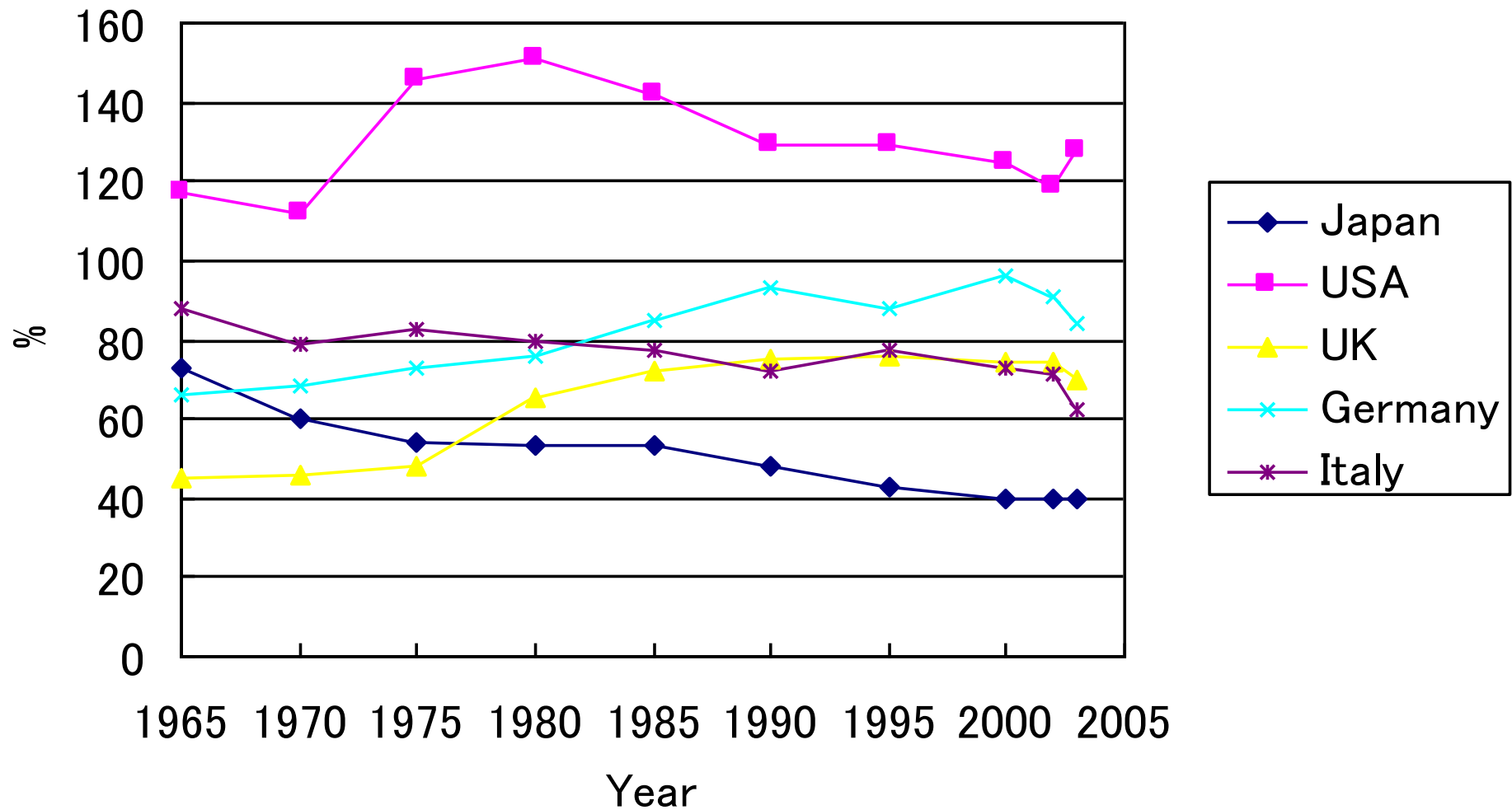
Change of Population Density in DID



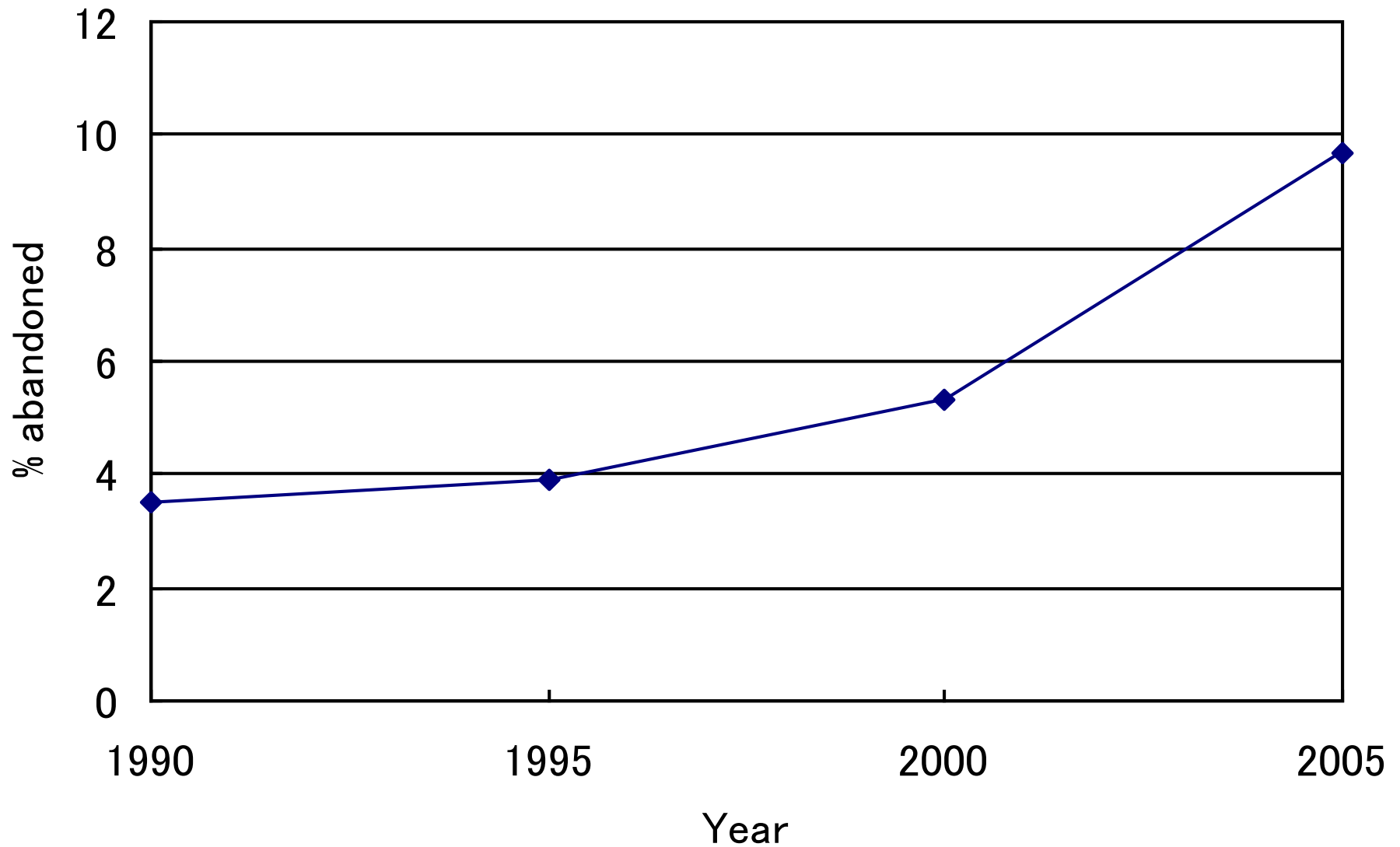
Agricultural Land Creation and Conversion to Urban Use in Japan



Self-sufficiency of Food

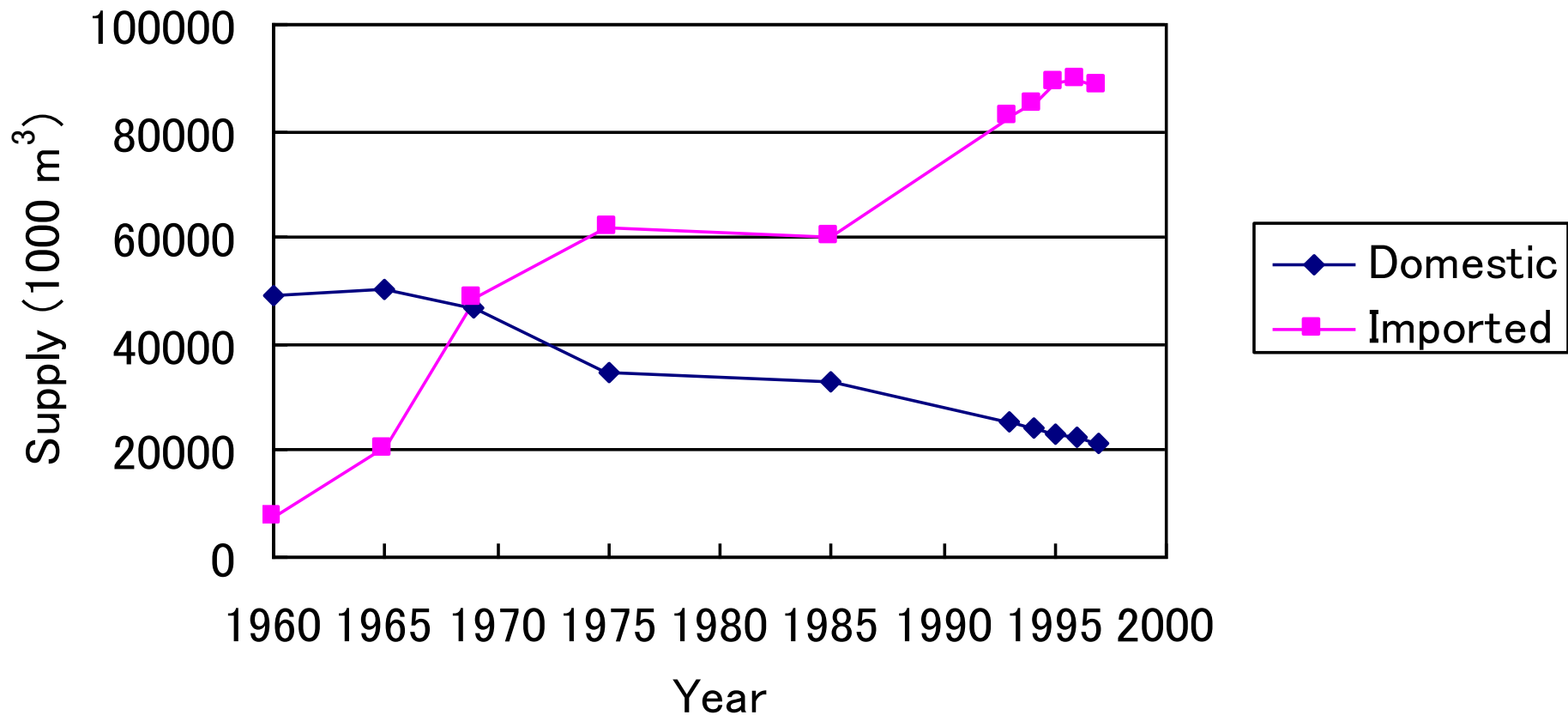


Increase in Abandoned Farmland

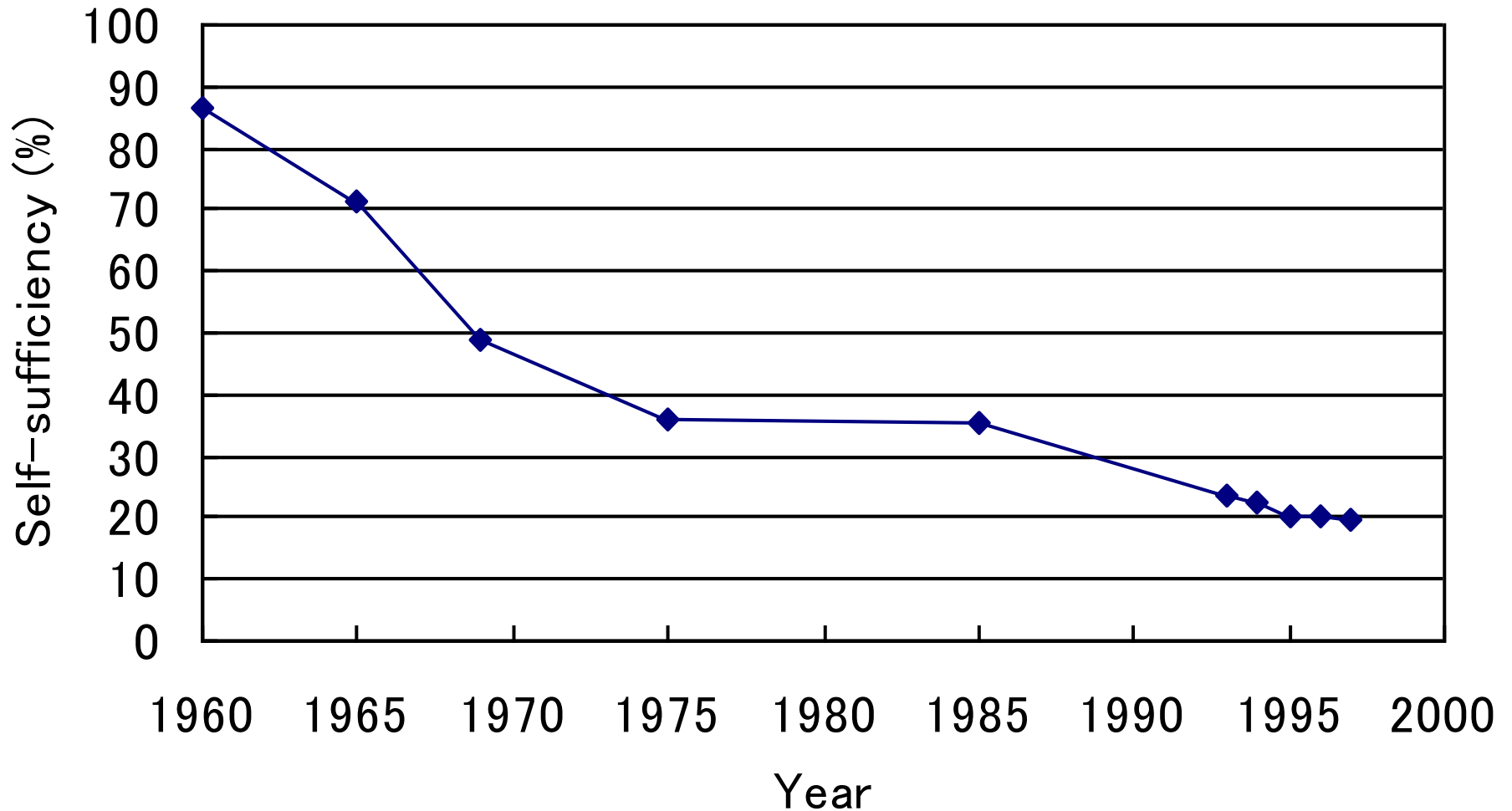


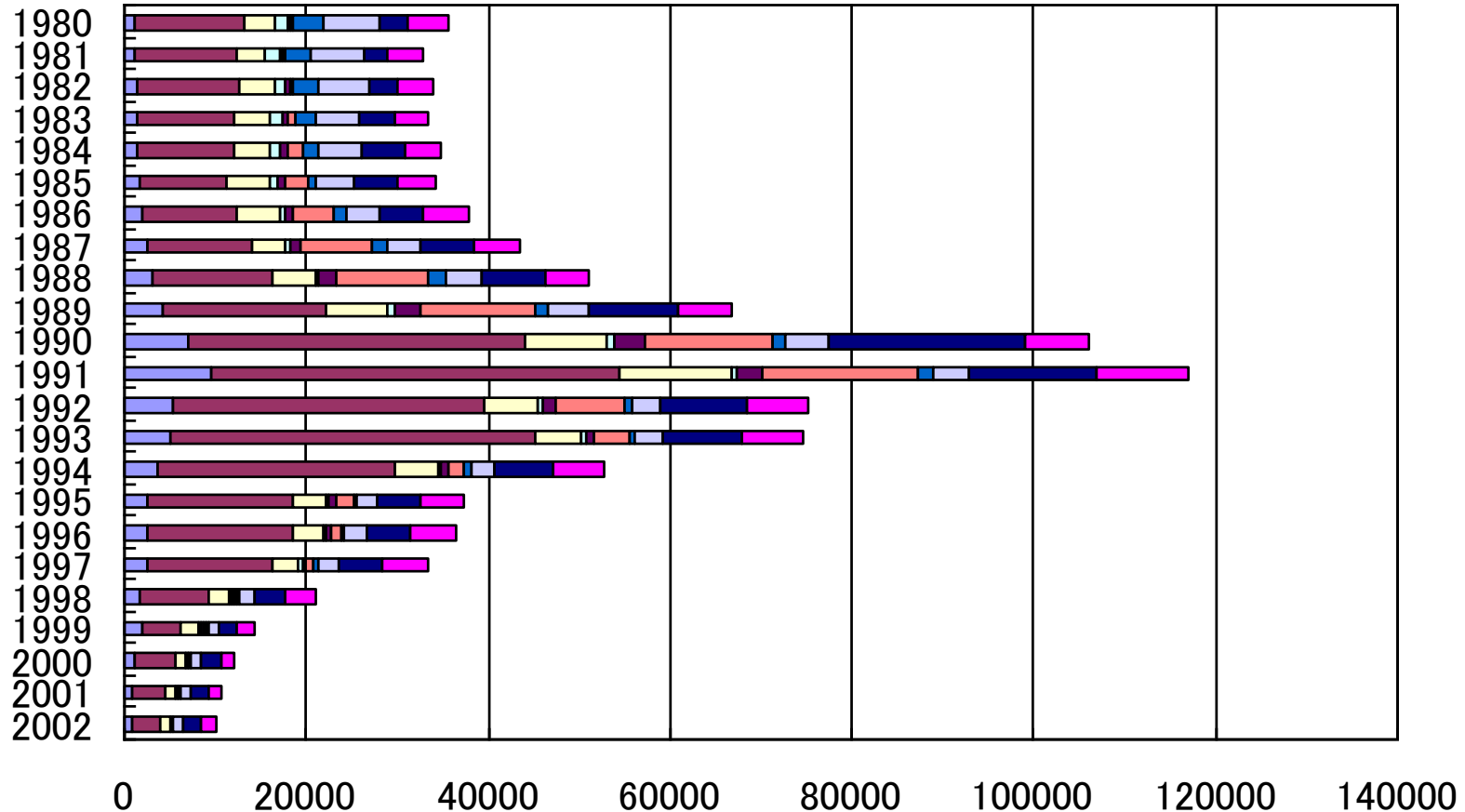
Timber Supply in Japan

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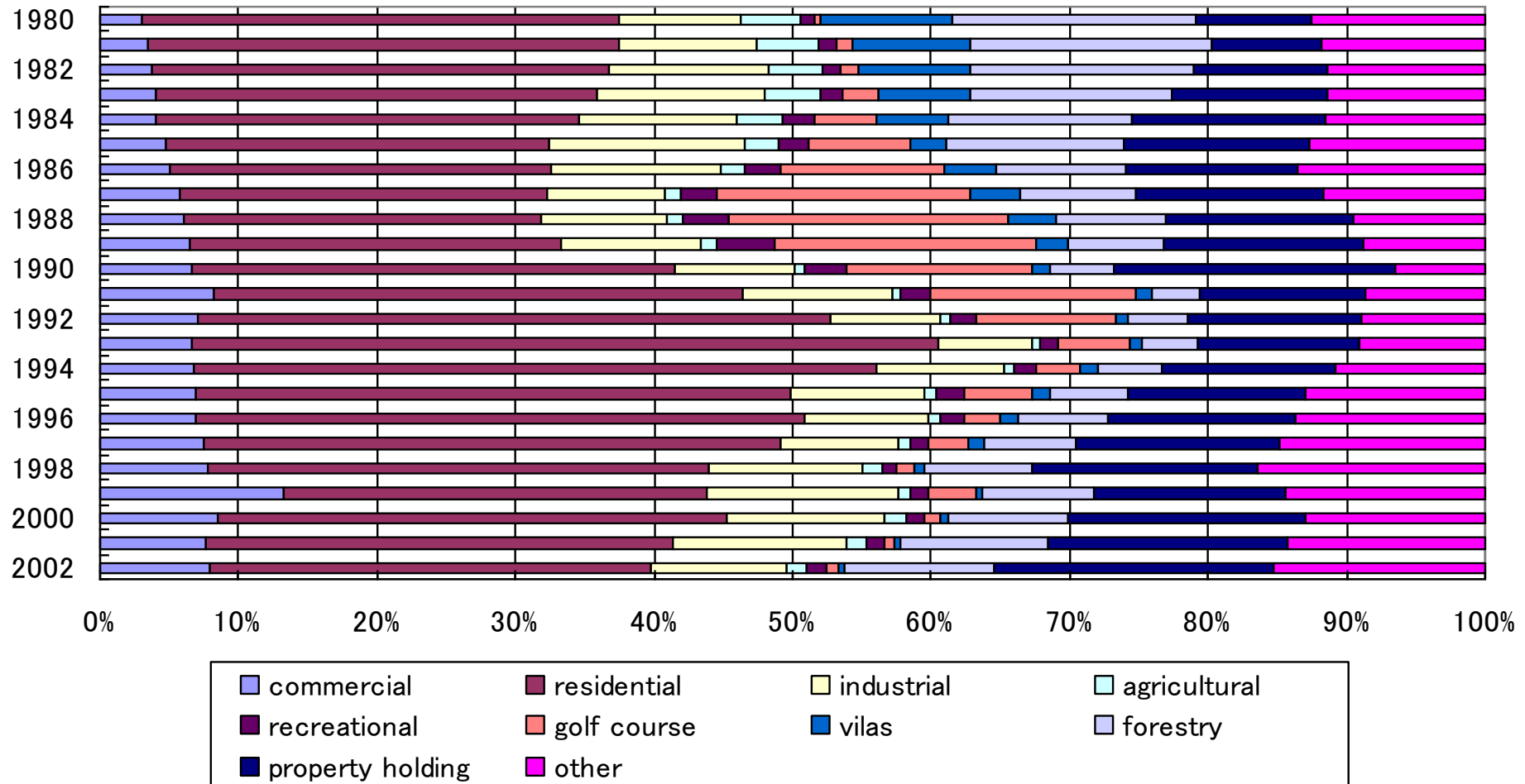


Self-sufficiency of Timber in Japan



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Number of Land Transactions reported according to NLUPA (by purpose, %)



Atlas Publication

IGU-LUCC has issued Vol.1, 2, 3 & 4 of “Atlas - Land Use/Cover Changes in Selected Regions in the World” (Himiyama et. al. eds. 2001). SLUAS is willing to pursue this atlas scheme for Asia. This Asiatic atlas is intended to be rich in original maps, new data, information and ideas. It is more than an ordinary publication scheme, as it is expected to encourage national/regional-level effort to construct original information bases and maps, to interpret phenomena observed on the maps or on the ground, and to identify and seek solutions to the problems hindering sustainable land use.

Atlas - Basic contents of the text

- 1) data source and preparation
- 2) land use/cover classification
- 3) study methods
- 4) important facts, processes, driving forces and mechanisms of land use/cover changes
- 5) regional differences, similarities, linkages and patterns of the items in 4)
- 6) references

Extended Contents

- 1) models of changes in the form of flow charts, diagrams or formula
- 2) effects of changes and major problems related with changes
- 3) future prospects of land use/cover changes



Thank You