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[Proposal of Asian Advanced River Basin]

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Global Monitoring for Ecology and Environment

Engineering/Civil Engineering

Agricultural and Life Sciences/Biological and Environmental Engineering

Estimation of Pollutant loads in River Basins Using Remotely Sensed Imageries

Land use and land cover changes (LUCC) in river basins have often caused serious environmental degradation. The increase of nutrient loads such as nitrogen and phosphorus to a river as the result of LUCC has become one of the major sources of water pollution. Monitoring the nutrient loads at the basin scale is deemed crucial in river basin management. Monitoring pollution loads at the basin scale is not trivial because it requires using monitoring networks to keep up with spatial and temporal changes in the river basin. In addition, models for estimating to pre-development and post-development pollutant loads have to be integrated with monitoring data. Pollutant loading estimation models with different level of sophistication may be screened and selected to meet environmental management goals under the impact of intensified human activities. In recent decades, the geographic information system (GIS) and remote sensing techniques have emerged as effective tools to aid in pollutant loading estimation.

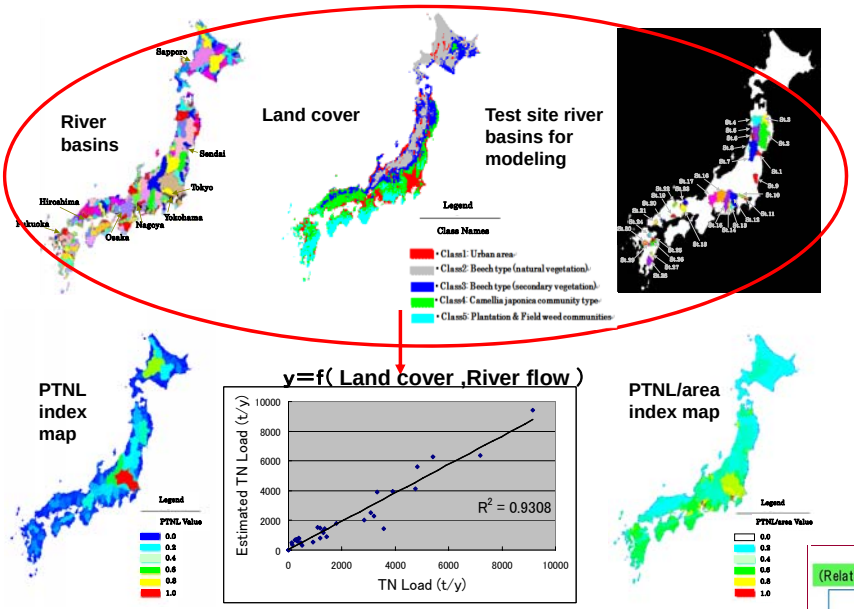

Fig.1 Estimation of TN pollutant loads in river basins using remotely sensed imageries.

The PTNL map will be useful for the risk assessment of total nitrogen load impact on lakes and the sea through rivers from each basin.
The PTNL/area index, which considers the effects of river basin areas, will allow evaluation of the state of river basins.

Future planning

Our study groups will begin studies on development and proposal of Asian advanced river basin in Indonesia and Laos from July, 2011. The study will be carried out in light of the balances of water environment, food production, and energy supply and demand.

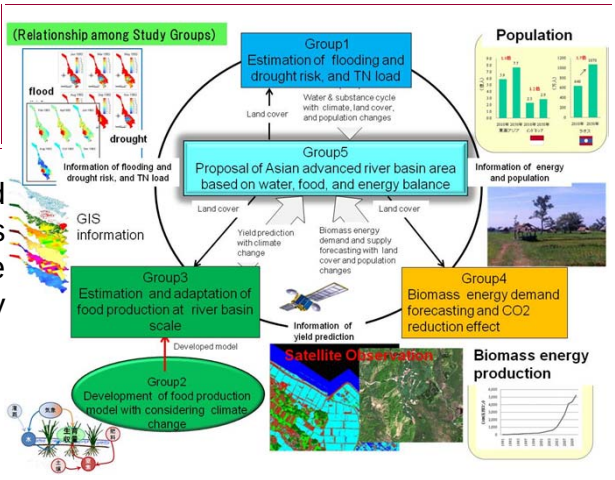

Fig.2 Study groups for proposing the Asian advanced river basin.