

A Study of Human Subsistence Ecosystems among Arab Societies: To Combat Livelihood Degradation for the Post-Oil Era

This research project aims to promote basic studies to clarify human life support mechanisms and self-sufficient modes of production among Arab people who have survived more than a thousand years under a peculiar natural environment of drylands. Based on these research results, we intend to propose a scientific framework to strengthen their subsistence productivity and combat livelihood degradation in local communities of Arab people to prepare for the post-oil era.

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Objectives

Japan and oil-rich countries of the Middle East have put excessive pressure on the Earth in terms of energy, water and food. As they have put first priority on economic prosperity for their own benefits, they have exploited irreplaceable resources such as fossil fuel and fossil water. Such attitudes have also pushed local ecosystems into an abnormal state by planting alien species, and furthered social differences among the people of the Middle East. As we are facing a turning point in oil-based modern civilization, our inter-dependency through trading fossil fuel must change drastically to a new inter-dependency to build a futurable society.

We focus on human subsistence ecosystems, which are human life support mechanisms and self-sufficient modes of production (hunting, gathering, fishing, herding, farming, and forestry) with low energy resource consumption. We also take another look at advanced technology and economic development, and reexamine the conceptual framework of comprehensive measures to combat desertification. Based on these research results, we intend to propose a scientific framework to strengthen subsistence productivity and to rehabilitate the daily life of general population among Arab societies for the post-oil era.

Research Methods and Areas

A study of human subsistence ecosystems among Arab societies will be advanced and implemented as three separate issues, such as 1) comprehensive measures to control alien invasive species mesquites, 2) an assessment of environmental effects by development programs in coastal zones of the arid tropics, and 3) supporting peoples' decision making by sharing research results.

Our research methods consist of two main pillars: (1) analysis of subsistence ecosystems focusing on keystone species (camels, date palm, man-

grove, and coral (reef)), (2) inspection of sustainability and fragility of Arab societies focusing on ecotones (wadi-beds, river-side, mountain-side, and sea shore).

Field surveys will be conducted in semi-arid lands between the River Nile and the Red Sea in Sudan; Red Sea coasts, Butana area and the River Nile area, as the main survey area, and in other areas of three countries; Sinai peninsula in Egypt, Red Sea coasts in Saudi Arabia, and Sahara oasis in Algeria, as sub-survey areas, so that we can compare a combination of keystone species, ecotones and traditional knowledge and examine a difference in sustainability of subsistence economy particularly under site-specific conditions.

Expected Results

We are conscious of social reduction of research results making use of these for local peoples' decision making as well as nations' policy making, by information dispatch through printing and digital devices in Japanese (bridge between Japanese and Arab societies), English (scientific language for scientists communities) and Arabic (local common language for local communities).

In pre-research, we will hold an international symposium "Human subsistence ecosystems with mangrove and coral reef in drylands", compiling knowledge from various fields of science and backgrounds on this particular topic as the starting point of the project. Then, we will publish the results of this symposium in English and Arabic to distribute to local people in Arab societies. By obtaining their comments through interviews and questionnaires, we plan to feed their opinions back to our project targets and research activities, and hope to publish a revised version of the book, as a result of information sharing, when we have finished the project.

Photo Assessment of environmental affects by development programs in coastal zones of the arid tropics



The coastal zones, in which fresh water can be converted from seawater, became a big development frontier and may cause environmental degradation by releasing highly concentrated saline water into the sea. On the other hand, this area is rich in biodiversity, so it has high potential for seafood and pastoral food production through reforestation of mangroves as fish nurseries and forage safekeeping. We are compiling scientific knowledge to prevent a new outbreak of environmental problems in coastal area development.