

## Completion Report

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### Understanding How Japan's Globally Important Agricultural Heritage Systems Contribute towards Locals' Food Security and Agro-Biodiversity Conservation: Lessons for Malaysia

Traditional agricultural practices, that ensure food security of farmers and conserve agro-biodiversity, are under serious threats of disappearance. In recognition of these threats, the Food and Agriculture Organization of the United Nations (FAO) launched an initiative in 2002 to identify and safeguard Globally Important Agricultural Heritage Systems (GIAHS), which helps to identify ways to mitigate the threats faced by farmers as well as enhance the benefits derived by these systems for a balance between conservation, sustainable adaptation, and socio-economic development. GIAHS is relatively a new intervention and has not been studied widely. The aim of this project was to evaluate the contribution of GIAHS to locals' food security and agro-biodiversity conservation drawing data from two GIAHS sites in Japan namely, Takachihogo-Shiibayama Mountainous Agriculture and Forestry System (TSMAFS; Miyazaki Prefecture) and (ii) Nishi-Awa Steep Slope Land Agriculture System (NASSLAS; Tokushima Prefecture). Relevant data was collected through six key informants' interviews, three interviews with village representatives, 33 structured interviews with farmers, and visits to sites from 2-10 August 2022. We prepared a 5-point Likert scale (1=strongly agree and 5=strongly disagree) structured questionnaire for the survey and a checklist for key informants and village representatives. In both sites, GIAHS were designated as a system approach having multiple farming systems such as agriculture, forestry, livestock, irrigation, tourism, traditional houses, etc. that have distinct connection with local cultures and have global importance. The authorities (town office, prefecture, and the national government) along with local farmers came forward toward preserving the traditional agricultural practices with some value additions such as promotion of farm stay tourism, branding of local products and revitalization of traditional culture. In Shiiba village (TSMAFS), farmers reintroduced swidden agriculture after the World War II as a symbol of cultural revitalization (e. g. collective action, harvesting festival, community gathering) in 2022. Farmers' cooperative developed small scale hydroelectric project by using the irrigation water that can generate 49.9KWh electricity for 70 families, which generate a revue of 10 million JPY per year. Farmers in NASSLAS have been practicing sustainable agriculture on steep slope for long time without terracing and by using locally available grasses as mulch. With these practices they grow native food crops and preserve these genetic resources without degrading the mountain ecosystem.

Farmers' survey results indicate that GIAHS reasonably ensures food and livelihood security (mean score 2.68), conserve local agrobiodiversity (2.44), and preserve local traditional knowledge (2.15). These GIAHS also preserve local cultural values and empower local organizations (2.07) and ensure the sustainability of landscapes and seascape features (2.35). Several challenges were identified including aging population and depopulation of younger generation (1.42), fewer people taking over family farming (1.52), non-inclusion of traditional agricultural practices in education systems (2.30) and the climate change (2.19). Findings of this project was shared in a workshop with academics, researchers, and

practitioners. All agreed that the GIAHS can help to preserve traditional agricultural practices, ensure food security of local people, and so the government needs to come forward towards adopting this initiative in developing countries like Malaysia.

Publication of the Results of Research Project:

Verbal Presentation (Date, Venue, Name of Conference, Title of Presentation, Presenter, etc.)

Presented a paper on "Japan's GIAHS for Food Security and Agrobiodiversity Conservation" in a workshop on "Globally Important Agricultural Heritage Systems (GIAHS) in Japan: Lessons for Malaysia" held on 20 December 2022, University of Nottingham Malaysia.

Thesis (Name of Journal and its Date, Title and Author of Thesis, etc.)

We plan to prepare a journal article to be submitted in *Frontiers in Sustainable Food Systems*

Book (Publisher and Date of the Book, Title and Author of the Book, etc.)