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# INTRODUCTION

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The United Nations Food and Agricultural Organization (UNFAO) 2021 website response to the COVID19 states that, “Strengthening food production and distribution systems is key to fighting hunger and entails helping tackle diseases wherever they emerge in humans, animals, plants or the environment.” The importance of agricultural production and healthy, reliable food production is key to a sustainable economy as well as sustainable health through food security. The majority of food consumed in Palau is imported, greater than 85%, and has led to heavy dependence on the global market which is not sustainable. Sustainable Development Goals of Republic of Palau have prioritized agriculture; and this collaborative text will be used as an educational tool for younger generations as well as a manual to increase agricultural output presently.

Proper land management has always been critical in the success of civilizations, large or

small. Land management practices in Palau were developed over thousands of years through complex practical and political structure. The growth, rotation and preservation of crop and livestock are pivotal features in maintaining populations in a set space. Furthermore, knowledge of edible and non-edible biota is key to survival of all humans whether in a sedentary or nomadic lifestyle. Palauan agroforestry and marine collection/fisheries were key to survival and population growth. With increased globalization and altered lifestyles in Palau, the production of local foods has decreased dramatically. A balance is needed in order for the island to develop sustainably, which will require a review and integration of both tradition and effective modern mechanisms of agricultural production. Resources are limited on small islands and must be managed properly to maintain a balance between production and ecological preservation.

Agriculture is by far the largest consumer of the Earth’s available freshwater (about  $3.9 \times 10^9$  tons per year) which is three times more compared to 50 years ago, in which 70% was consumed by Asian countries. Seventy percent of the freshwater withdrawals from surface water and groundwater sources are for agricultural usage. The increase in world population; and the subsequent increase in cereal consumption, freshwater resources, and global public goods; require resource conservation and sustainable agricultural management. The development of effective technologies and regulations especially in areas where resource availability is highly fluctuating is essential when moving forward to larger scale agriculture..

The Japan International Research Center for Agricultural Sciences (JIRCAS), decided to assess the current status of water and material balance and evaluate ecosystem functions through monitoring of water, soil, and nutrients within the watershed of Babeldaob Island, Palau, under a research project titled “Development of Sustainable Resources Management Systems in the Water-Vulnerable Areas in Asia and Pacific Islands.” This project is under the JIRCAS Program A, Environment and Natural Resource Management titled, “Development of agricultural technologies for sustainable management of the environment and natural resources in developing regions.”

The JIRCAS, Ministry of Natural Resources, Environment and Tourism (MNRET), the Environmental Quality Protection Board (EQPB) and the Palau Community College (PCC), conducted a series of studies under the research project titled, "Development of Sustainable

Resources Management System in Palau" from fiscal year 2016 to 2020. The action plan consisted of following three subjects,

Subject 1: Ecosystem evaluation and development of well-balanced water, soil, nutrients and nutrient cycling, and evaluation of ecosystem functions in watershed of the Babeldaob Island

Subject 2: Development of sustainable cropping and land management systems through utilization of local resources

Subject 3: Integration of land use & watershed management in Palau

All participants conducted field studies in the watersheds from the forested slopes and ridge stand riparian forests, to the lowland swamp forests and wetlands and taro gardens, and estuaries and mangrove forest and the reef shores to address these three subjects. I believe the field studies by the participants from Japan and Palau resulted in valuable information that will contribute towards sustainable land and water management in Palau. We sincerely hope that these results will be used to help Palauan people maintain their beautiful pristine environment through sustainable use of their natural resources. Parts of this publication, “Agriculture in Palau: A Manual for Production through Soil Assessment” is based on the findings of this joint research project. Japan and Palau have long ongoing friendships. It is a great pleasure for us to be part of this collaborative project.

