

## CHAPTER 5

# FUTURE SCOPE FOR AGRICULTURE

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## **Forest Diversity**

Forest of Palau have a large diversity and include over 150 endemic species found nowhere else in the world (Kitalong et al. 2013). Mangroves are well developed in Palau; they are the most species rich in Palau compared to other Micronesian Islands. Mangroves are found at the mouths of rivers and drainage systems, on coastal mudflats, and sometimes at offshore islands. Swamp forests are well developed in Palau. Species rich swamp forests are found along the Alimokan river in Ngatpang bay on the west coast of Babeldaob Island. Palms grow in the forests of Babeldaob Island and the rock islands. Palau has the most species of native palm, yet they are usually not predominant in the upper canopy. We also can see limestone forests in southern Babeldaob and the rock islands. Limestone forest is most common on Angaur and Peleliu. The species composition of these islands is rich and diverse. In the area of coastal Angaur and Peleliu, dense stands of *Casuarina equisetifolia* L.) occur. The ground is covered with a thick carpet of needles which inhibits other vegetation growth.

## **Problems in farming**

The total population in 1950 was 7,441 which increased to 19,867 in 2004 Over 50-year period and kept stagnant around 18,000 until 2020. Urban population increased from 71.4% in 1995 to 77.35% in 2005; while the rural population decreased from 28.59% in 1995 to 22.65% in 2005. An increase in urban population means a significant increase in demand for agricultural production which significantly affected food security and rural development. This population shift caused an increase in rural poverty primarily is observed due to urban migration which resulted in less manpower for farming and, thus, less food production (FAO 2008).

## **Contribution to the sustainable development goals (SDGs)**

Palau has embraced the SDGs at the higher political level. Palau identifies 95 targets from the national SDGs framework. Among 95 goals, we pick up the goals related to agriculture and describe our visions as below (National review

on the SDGs, 2019).

SDG target 2.1 (End hunger & ensure food security) is a household and national food security concept. We highly depend on imports from abroad that cause National insecurity. In Palau's office (2014), 86 percent of food expenditures were for imported foods, much of which had low nutritional quality. Only 14 percent of expenditures were for locally produced foods. As all Palau residents know well, even a short disruption in shipping results in rapid depletion of food stocks.

There are many reasons for low food production such as shortage of arable land, difficulty in accessing clan land, oriental fruit fly infestation, weak land use planning, disinterest in agriculture among young people, and the high cost of local production compared to importation (ADB, 2017). Climate change, including saltwater intrusion into wetland taro patches and more frequent and severe droughts, are also constraints to local production that will become more important in near future (NEPC, 2017).

National policy to strengthen resilience in aquaculture and agriculture adopted in 2015 provides a policy framework and action plan to increase local food production, farm mapping in 2016 by PALARIS (Palau Automated Land and Resource Information System), implementing a piggery improvement project by BOA (Bureau of Agriculture), collaborative work with civil society and government to identify salt and drought resistant crop varieties. promotion of community-based activity with women to rehabilitate taro patches, providing agriculture support through the national development bank with low interest loans, research and

extension services provided through BOA and establishment of national marine sanctuary.

As a future scope for SDG target 2.1, we should enhance national food security; improving health by reducing dependence on imported food, enhancing climate resilience of local food supplies, realizing sustainable agriculture with eco-friendly ways, advocating young Palauan entrepreneurs for farming and so on.

To achieve the SDG target 8.3 (Growth-oriented policy), we should encourage activity in the agriculture field. The 1980's the contribution of agriculture to Palau's economy has steadily declined. Agriculture is now contributing about 3 percent to Palau's GDP. Over the same period food imports have steadily increased. For the period FY 2013-2017, food imports averaged \$39 million per annum or about 22 percent of total imports (UN, 2017). The stated goals of a national policy and plan for achieving resilient agriculture and aquaculture adopted in 2015 are to achieve 50 percent of Palau's food requirements by local products by 2020 and 80 percent by 2025. Initiative for SDG target 8.3 include low-interest farm loan facility provided by the National Development Bank, project support to empower women for organic value chains, support of a pig improvement project and pig slaughterhouse, taro patch rehabilitation project, ongoing support to farmers by BOA with tillage services, technical advices, and propagation of seedlings.

SDG 13.1 target (Climate hazards & natural disasters) addresses climate change and disaster risk reduction. To achieve SDG 13.1, we promote climate resilient agriculture and aquaculture, sustainably manage coastal ecosystems, and

protect ocean health, and protected forests which are important climate sinks.

Regarding the SDG 14.1 (marine pollution, sediment, plastics), sediment from land-based development is recognized as a big influence on reef biodiversity. Research shows there is a close relationship among earthmoving, sediment runoff, coral cover and near shore biodiversity. It is estimated that sediment rates have increased 300 to 500 percent in the last twenty years and the number of earthmoving permits sharply increased in 2008. This evidence reflects worsening of the environmental problems (NEPC, 2019). The Palau Environmental Quality Protection Board (EQPB) restricts the earthmoving permission related to the soil erosion in sensitive areas and requires use of best practices everywhere to minimize runoff. As pathways to 2030, we recognize land-oriented pollution, especially sedimentation, stress of coral reefs. The earthmoving permit system has been reviewed and revised to more effectively contributing towards the reduction of sedimentation.

Regarding the SDG target 15.1 (Terrestrial & freshwater ecosystems & forest cover), Palau forests are diverse with endemic and native species. Palau's diverse topography and habitats, isolation contribute to high terrestrial biodiversity including over 1346 species and at least 702 native plants with over 146 endemic species and 19 potential endemic species, that can be found mostly in Babeldaob (Costion et al 2020). In addition, Palau's forest provides vital ecological services that maintain the healthiness of the terrestrial and marine ecosystems (e.g., sediment trapping, climate stability, nurseries

for reef fish, soil production and conservation). Forests cover 87% of Palau's land area that have increased over the past 50 years (NEPC, 2017). However, 30% of Palau lands are disturbed by fire, animal damage, wind, tree disease, invasive species and cutting (NEPC, 2017).

For the SDG target 15.1, Palau aims to expand terrestrial protected areas (TPAs) up to 20% by 2030. The forest of the Rock Island Southern Lagoon World heritage site is 100 percent protected, mangroves are 40% protected, while only 10% of the ecologically sensitive and biodiversity rich forests of Babeldaob are protected (NEPC, 2017). However, to realize territorial protection, we should fill the information gap that impedes sustainable management of land, forests and biodiversity. Many of Palau's native and endemic species have never been assessed in detail and thereby making it impossible to monitor or effectively manage populations except for Koror. Most Palauan residents are not aware of the impact their individual actions have on nature.

## Index of Genera and Species

Scientific	Common	Palauan
<i>Casuarina equisetifolia</i> L.	beef wood, iron wood	ngas

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