



## STRENGTHENING NATURAL RESOURCE MANAGEMENT UNDP PROJECT RIDGE TO REEF AS IMPLEMENTER FOR AGROFORESTRY PROGRAM IN TERTIARY AGRICULTURE EDUCATION IN COLLEGE OF MARSHALL ISLANDS

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**ABSTRACT** This Project highlights the main achievements in strengthening natural resource management in the Republic of the Marshall Islands employing integrated approaches (RMI Ridge to Reef). The Project objective is to sustain atoll biodiversity and livelihoods by building community and ecosystem resilience to threats and degrading influences through integrated management of terrestrial and coastal resources in priority atolls/islands. The project aims to support the native communities by natural resources management and protection of biodiversity for sustained livelihood. College of Marshall Islands under this program focuses on agroforestry learning objectives by producing course learning materials and development of course curriculum in pedagogy. As an implementing partner, College of Marshall Islands focused on Outcome two of the Project that is to support higher education providers in developing coursework and testing a curriculum for an Agroforestry/Terrestrial Certification Program at the College.

**KEYWORDS :** Natural Resource Management, Atoll biodiversity, Ecosystem Resilience, Curriculum and Sustained livelihoods

### INTRODUCTION

College of Marshall Islands support higher education providers in developing coursework and testing a curriculum for an Agroforestry/Terrestrial Certification Program at the College. The coursework includes regionally accepted sampling and estimation procedures and Open Education Resources development. The paper is built on the Final UNDP Ridge to Reef Report 2021. The major output of the project is the successful development of agroforestry course curriculum framework for diploma and associate degree level.

Project Background: The Republic of Marshall Islands (RMI) RMI Ridge to Reef (R2R) project is a five-year (2017-2022) project designed to support the RMI's commitments to the protection of its environment and biodiversity, adopting an integrated management approach based on the National Conservation Plan- the Reimaanlok. The project is aligning to the Micronesia Challenge, a commitment by the Micronesian countries, to effectively conserve 30% of nearshore marine and 20% of terrestrial resources by 2020. The project is piloted on five outer islands sites include Aur, Mejit, Likiep, Wocho and Ebon.

The project has three components, as follows: a) Component 1: Expanding and sustaining RMI protected area network b) Component 2: Improved governance for integrated atoll management c) Component 3: Knowledge Management

CMI as Partner in Project	Summary of Tasks	Agreed Amount (USD)	Amount Utilized in 2019
College of the Marshall Islands (CMI)	Support the development of the Agroforestry Curriculum. Test and pilot the curriculum.	197, 375	48,000

### PROJECT OUTPUTS

1. Developing and test coursework for 15-credit Agroforestry/Terrestrial Certification Program at the College that will include theoretical and laboratory components
2. Consultation with the Ministry of Natural Resources & Commerce (MoNRC), the US Forestry Service, the Pacific Community (SPC), and other regional development partners in the coursework development.
3. Develop a practical/ internship program to allow student to gain work experience within national and local government -run facilities like the CMI-Land Grant, Environmental Protection Agency, MoNRC, and public-school agriculture programs
4. To submit a report of work completed, according to the agreed/approved workplan and schedule

### PROJECT UPDATES

Output	Activities	Activities Details	Status as of Dec. 2019	Next Action

2.4	Capacity building on integrated approaches for conservation and livelihoods benefiting key national government agencies, community leaders and residents in all 24 outer islands in the entire country; participation by key project stakeholders in regional training programs conducted by the Pacific R2R program support project	Support higher education providers in developing coursework and testing a curriculum for an Agroforestry/Terrestrial Certification Program at the college. The coursework will include regionally accepted sampling and estimation procedures and Open Education Resources development	Agroforestry Expert: The recruitment selection for the expert to develop and test the curriculum completed. The CMI HR is currently working with the candidate on the offer and contract documents. The instructor started working in the 3rd quarter. 2019 Consultation with Line Ministry and Departments on the Agroforestry Course conducted. Recruitment of students to undertake the course started in Quarter 3, 2019 and to be continued in 2020.	Complete development of the Agroforestry curriculum; All students recruited. Teaching of the Certificate courses to convene.
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### PROJECT OUTPUT (2.4) ACHIEVEMENT SUMMARY

1. The development of the course curriculum was successfully accomplished by getting approval of five courses with 15 credits from CMI Course Curriculum Committee. The courses were taught in two modules with participants from five outer atolls and the schedule started from May 4th 2020 till May 28th 2020 for first module completing two courses AGF 101 and AGF 103. The second module started from August 4th till September 3rd which concluded with courses AGF 102, AGF 104 and AGF 105. Eleven students graduated with certificate of accomplishment for coursework in Graduation ceremony.

2. Course work development successfully completed by taking feedbacks and comments from MoNRC, EPA, USFDA representatives. All the courses were duly sent to CMI CC Committee for feedback and approval during several meetings held with them. The courses developed are AGF 101/102/103/104/105 as per the well-defined course outline format that seeks committee members' approval during the presentations.

3. All the participants from five outer islands participated during the two modules and gained knowledge for practical fieldwork in the CMI campus field labs, gardens for making soil beds with gardening techniques and in situ laboratory work for soil pH and compost analysis. The soil pH Kits were provided by MoNRC for students

learning program and Technical Taiwan Commission held one day live training for the Pig rearing and Biogas plant functioning in detail. CMI Land Grant provided the on campus space and utilities for soil beds and outer cover soil bed material which students had firsthand knowledge of making beds from lumbers provided.

4. Academic report submitted according to work plan and schedule. Report is submitted as per the work plan that shows the academic progress doing the SWOT analysis of the program.

## PROJECT ACTIVITIES FOR THE AGROFORESTRY PROGRAM

Goal of the Agroforestry program

Introduction of fundamental concepts in Agroforestry identifying both global and national needs for Agroforestry in Marshall Islands environment and the fundamental concepts of various Terrestrial Ecosystems. Study of the richest natural ecosystem on earth-the coral reef found in Marshall Islands.

### Target participants

Farming experts and professionals with agriculture background join the program from Atolls Jaluit, Jabat, Nembu, Ebye, Majit, Rita and Majuro with total number of 11 participants.

### Launch Event

Mayors, Agriculture extension agents, CMI President and Participants attended the launch ceremony of Agroforestry Program 2020 on 4th May, 2020

### Duration of the Program

Agroforestry Program includes five courses that runs into two Month Module the first Module starts in May as three-week course work and lab work second Module starts in August that results in completion of program and students receive Agroforestry Certificates. The program started on May 4th and ended successfully on May 22nd, 2020. This covered two courses AGF 101 and AGF 103 with full lectures and lab work. The second module started from August 4th till September 3rd which concluded with courses AGF 102, AGF 104 and AGF 105. Eleven students graduated with certificate of accomplishment for coursework in Graduation ceremony.

### Future Plans and Job Opportunities

Agroforestry experts/Professionals required by both Government Sector and non- government sectors, Entrepreneurship for agroforestry based products as representatives and marketing experts.

### Achievements

Agroforestry students get an opportunity to understand the wide range of forestry and agriculture areas to benefit from it both professionally and academically. At the end of the program, students are given certificate as an achievement for successful completion of the full program.

Stipends were paid to students on regular weekly basis by the project finances gives motivation to them for performing better and learn the new hands on skill.

### Student Evaluation

Power point seminars and laboratory practical are designed to evaluate the performance of the students fairly to provide them certificate at the end of the program. Project report for Biogas plant of Pig Pens observed at Technical Taiwan Commission and Green organic composting gave practical knowledge of this course. Course Feedback forms are provided to evaluate the course on multidimensional basis for the requirements, sustainability, outcome of the course.

## ACADEMIC PROGRESS REPORT AGROFORESTRY PROGRAM-2020

Agroforestry is an intensive land management system that optimizes the benefits from the biological interactions created when trees and/or shrubs are deliberately combined with crops and/or livestock. There are five basic types of agroforestry practices today in the North America: windbreaks, alley cropping, silvopasture, riparian buffers and forest farming. This report discusses the strengths, weaknesses, opportunities and threats as SWOT Analysis faced by this 15 Credit Curriculum development to assess the overall performance on a holistic approach.

## STRENGTHS

1. The frontiers of agroforestry science are advancing by incorporating courses in teaching and learning programmes.
2. It is an advantage since very few universities have established fully-fledged degree programmes in agroforestry.
3. The curriculum includes basic types of agroforestry practices today windbreaks, alley cropping, silvopasture, riparian buffers and forest farming.
4. This can strengthen the tertiary education program in agroforestry by performing lab activities both in-situ and ex-situ.

## WEAKNESSES

1. The global education on agroforestry is highly varied so developing the course curriculum is a big challenge. Agriculture and forestry sciences are used as platform to launch agroforestry education.
2. Agroforestry science is having fundamental concepts derived from other natural sciences.
3. The sharing of knowledge and experiences for development of this program is not coordinated on worldwide scale.

## OPPORTUNITIES

1. The benefits of agroforestry is in meeting the needs of the farming communities by facilitating a global understanding and collaboration in improving the relevance and quality of agroforestry education.
2. The Course curriculum can be developed both for Certificate of completion or for AS degree program.

## THREATS

1. Agroforestry is a part of existing curriculum as a subject or topic but providing it a separate status is debatable.
2. The program finds challenge from the existing natural and geographic location of that area since it involves rigorous research work performed by peers to develop course curriculum

## ACKNOWLEDGEMENTS

The donor United Nations Development Pro Global Environment Fund Truste funds United Nations Development Project Ridge to Reef

## STATEMENTS AND DECLARATIONS

Funding and/or Conflicts of interests/Competing interests.

The Project number-00101900 and Project title- Reimaanlok- Looking into The Future: Strengthening Natural Resource Management In The Republic Of The Marshall Islands Employing Integrated Approaches (RMI R2R) has been funded by United Nations Development Pro Global Environment Fund Truste. I, Ekta Madan the author of this article declare that I have no conflict of interest.

## REFERENCE LIST

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