

Innovation through Cooperation International Networking

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Sustainable development of small islands in the Indian
Ocean to enhance competitiveness in archipelago
economies



PENDAYAGUNAAN PULAU-PULAU KECIL MELALUI PROGRAM ASUH PULAU (ADOPSI PULAU)

The Utilization of Small Island Through Island Adoption

Direktorat Pendayagunaan Pulau-pulau Kecil

Directorate of Small Islands Utilization

DITJEN KELAUTAN, PESISIR, DAN PULAU-PULAU KECIL

Directorate General of Marine Coastal and Small Islands Affairs

KEMENTERIAN KELAUTAN DAN PERIKANAN

Ministry Of Marine Affairs and Fisheries



©am.aziz-Dit. Pendayagunaan Pulau-pulau Kecil-KKP, 2011

Karakteristik Pulau-pulau Kecil

The characteristics of small islands

- Apart from the main island;
- Highly vulnerable to changes that caused naturally and /or human-caused;
- It has a limited carrying capacity of the island;
- The population has typical social and cultural conditions;
- Local economic dependence on economic developments outside the island;
- Limitations of basic infrastructure;
- High dependence on coastal and marine resources
- The economy is based on the limited resources; and
- Limitations of equipment / method / technology to exploit natural resources in a sustainable way



Kriteria lokasi pulau adopsi

The criteria adopted island

- The island is a national priority, the outermost islands
- Infrastructure is limited or in poor condition
- Economic conditions were relatively balanced
- It has a unique and interesting locations, such as in terms of biodiversity or tourism potential
- Being in conflict or disaster-prone areas
- High Poverty rate
- Food insecure and vulnerable to the spread of diseases
- Affected by nearby businesses
- Level of dependence on the mainland high

KEBIJAKAN PEMBANGUNAN KELAUTAN DAN PERIKANAN

POLICY OF DEVELOPMENT MARINE AND FISHERIES

1. *Against-Poor*; through social and economic empowerment of marine and fisheries businesses.
2. *Pro-Job*; through the optimization of aquaculture potential untapped, capital support and certainty to lower the unemployment rate.
3. *Pro-growth*; through infrastructure development, industrialization, and modernization.
4. *Pro-sustainability*; through the recovery and preservation of the marine environment, coastal areas and small islands, as well as mitigation and adaptation to climate change.



ISU STRATEGIS PULAU-PULAU KECIL

STRATEGIC ISSUES OF SMALL ISLANDS

Ministry of Defense and Security

- Small islands, especially outermost as entry and exit gates the flow of people and goods, are vulnerable to occupation of other countries.

- Economic welfare:

Most of them still live in poverty, and limited livelihoods depend on natural resources and the economy outside the island.

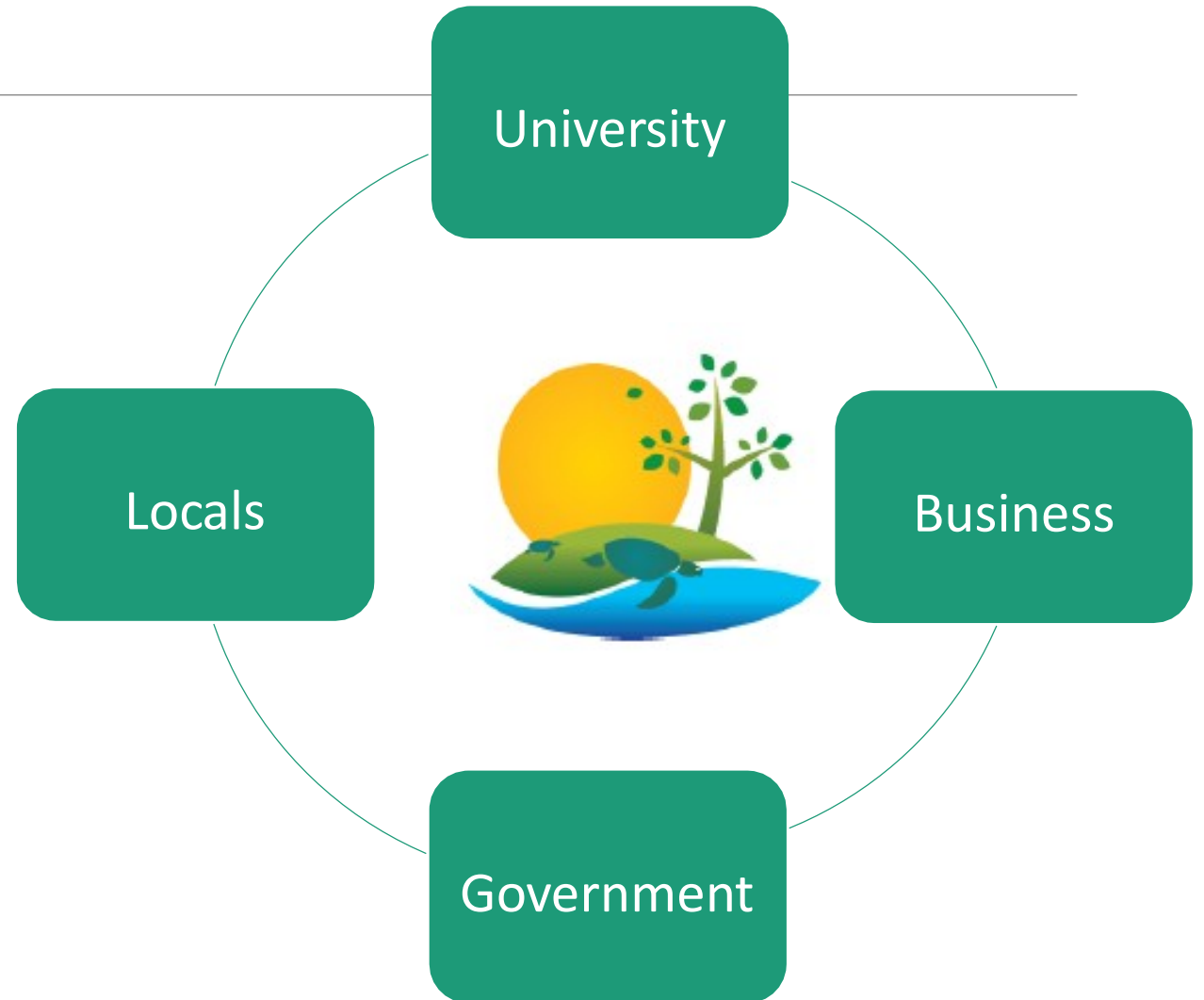
- Environmental Sustainability:

Small islands has a limited carrying capacity and are vulnerable to damage ecosystems, whether caused by human, natural disasters and the impact of global warming (climate change).



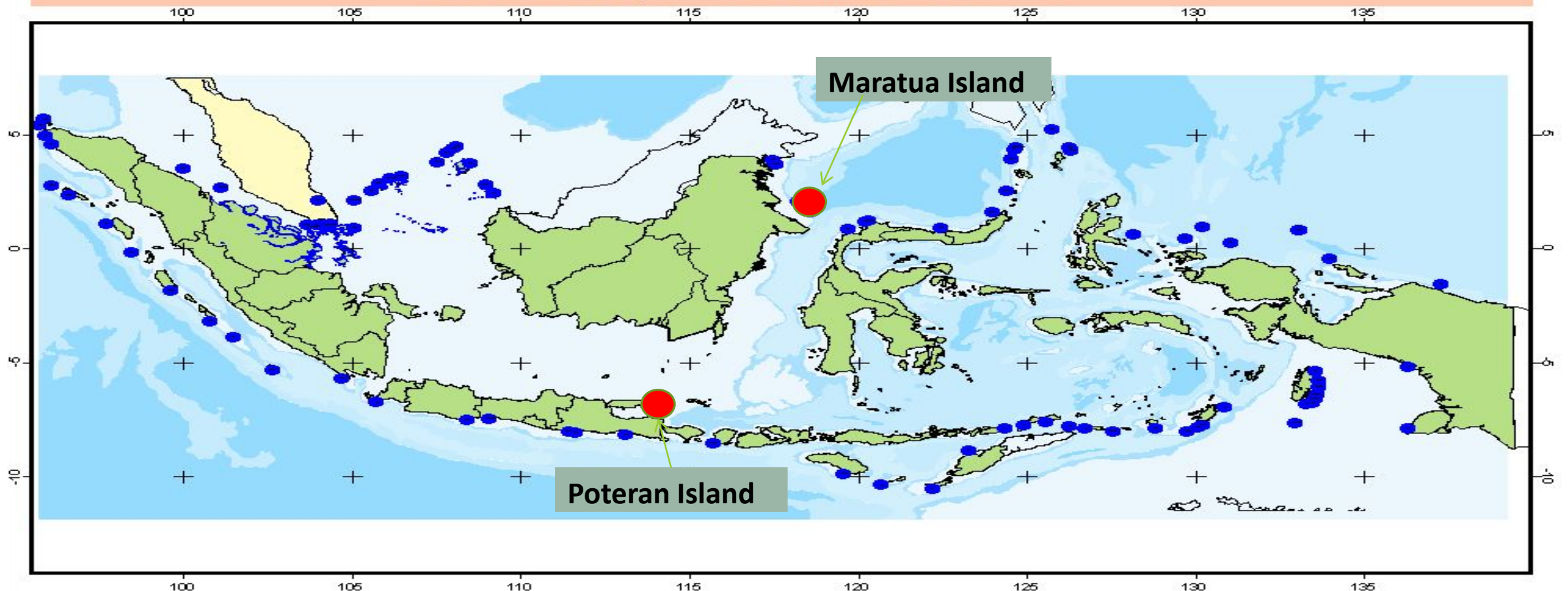
Sustainable Island Development Initiatives (SIDI) of Indonesia

- Launched by Indonesian Government 2011
- Indonesian Universities together with international partner Universities should adopt islands (most outer Islands) and create (transferable) models for development of the islands
- Established/signed in 2012 at ITS
- Two islands are adopted:
 - Maratua (East Kalimantan) &
 - Poteran Islands (East Java)



Indonesian Archipelago

92 Pulau - pulau Kecil Perbatasan



LEGENDA

- Pulau Kecil Terluar
- Garis Pantai
- Provinsi

Bathymetri

- 0 - 500 m
- 1000 - 3000 m
- 3000 - 5000 m
- 500 - 1000 m
- > 5000 m



Direktorat Tata Ruang Laut, Pesisir dan Pulau-pulau Kecil
Ditjen Pesisir dan Pulau-pulau Kecil
Departemen Kelautan dan Perikanan

Development of Small Islands - Challenge for International Cooperation

It is all about small islands, about biodiversity. It is about marine tourism, fishery, coral reef and also mineral. It is about one of the richest and the most beautiful parts of the earth surface.

But this is not the whole story. Inhabitants face poor health care, transportation, energy and education. Environments tend to degrade due to improper handling by humans.



DAAD-Programme

“University-Business-Partnership”

Projects between higher education institutions and business partners in Germany and in developing countries

DAAD

Deutscher Akademischer Austausch Dienst
German Academic Exchange Service

BMZ



Federal Ministry
for Economic Cooperation
and Development



Future-makers.
Building the future.
Let's join forces.



What is the aim of the DAAD partnership programme?

1. University-Business-Partnerships are designed to prepare students for demands of the job market and thereby improve graduates' employment prospects.
2. to intensify the practical relevance of existing study courses.
3. to improve the relationship between universities and business partners.
4. to teach soft skills required in professional life.
5. to develop commercial links between German business and the partner countries.



Hochschule Wismar, ITS and business partners from Germany and Indonesia applied successful:

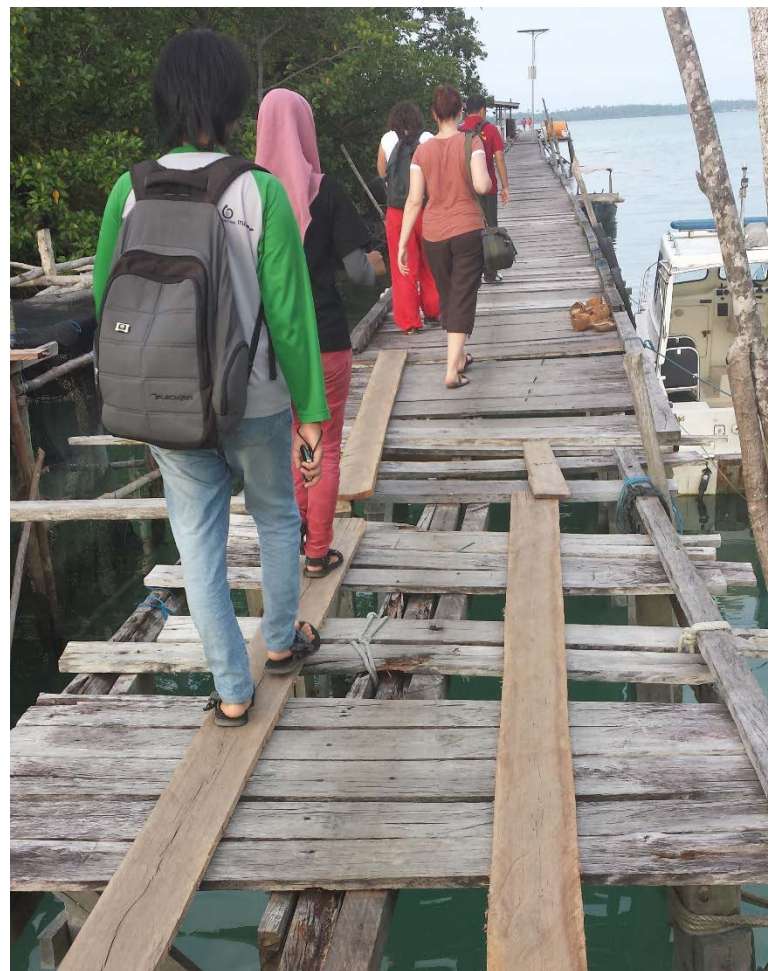
Innovation through Cooperation: Encouraging University-Industry Partnership starting with Students' Research and Development for Small Islands (SRD-SI)

- CREATING a forum “Understanding the Advantages of Partnership
- CREATING Students' Research and Development Teams – SR&DT



Innovation through Cooperation

Students Research and Development Teams for Small Islands



Partner Universities



Innovation through Cooperation

Students Research and Development Teams for Small Islands (SR&DT)

❑ Joint R&D Germany – Indonesia:

- Hochschule Wismar & Industry Partners
- ITS Surabaya & Industry Partners & Government



Sustainable
Island
Development
Initiatives

❑ Objectives:

- Develop tropical islands in a sustainable way = economic growth + social welfare + environmental protective
- Prepare & implement prototype solutions – in cooperation with industry partners (Indonesia and Germany)



Students' Research and Development Teams (SR&DT) background

- Especially small and medium enterprises have often good ideas how to improve their products or processes as well as have new ideas for products and processes. But the “daily job” do not leave time to work enough on it and to bring it to the market.
- One of the most significant barriers to university – industry partnership is the lack of awareness within the private sector and the academics sector about the benefits of partnering, as well as the mechanism for doing so.
- Students are very often interested to work on “real life – problems” in real life environments.
- In many study programmes of ITS is an internship included



Initiative & Project Framework to develop small Indonesian islands

1. Enterprises/government determines the topics of research/development
2. ITS students work in 2 teams, each 5-7 persons (Wismar students can complement)
3. Students conduct field research on Maratua and Poteran Islands and get workshops on Project Management and Entrepreneurship/Leadership
4. The SR&DT are working together for at least 6 month on the idea to find solutions/bring it closer to the market
5. Partners:
 - a) Ministry of Ocean Affairs and Fishery
 - b) Local Governments
 - c) German and Indonesian industries

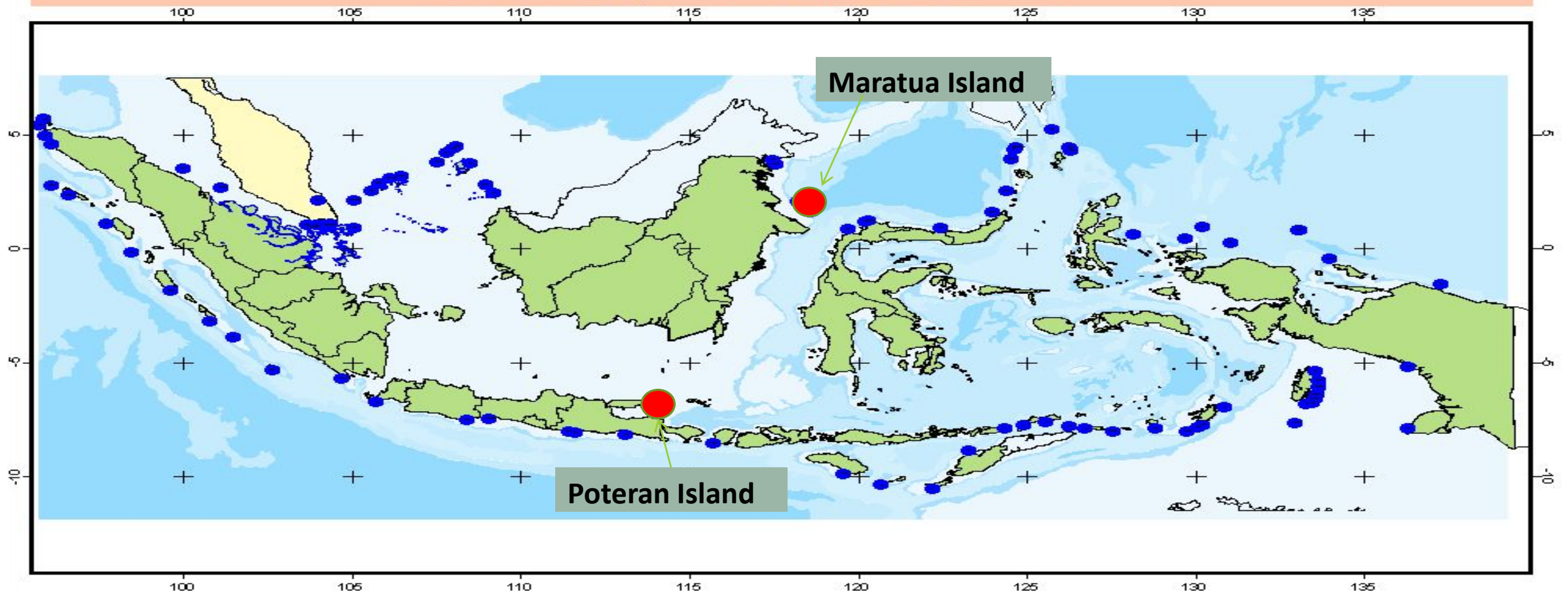


Maratua Island: A Beautiful Island and their Challenges



Indonesian Archipelago

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Departemen Kelautan dan Perikanan

Maratua Island



- Berau Regency, East Kalimantan
- About 3.000 inhabitants
- At country border: Malaysia, Philippines
- Potential: marine tourism
- Challenges: energy, water, healthcare, education, transport





AUCKLAND, 16TH NOVEMBER 2016



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Mostly Fishermen on Maratua





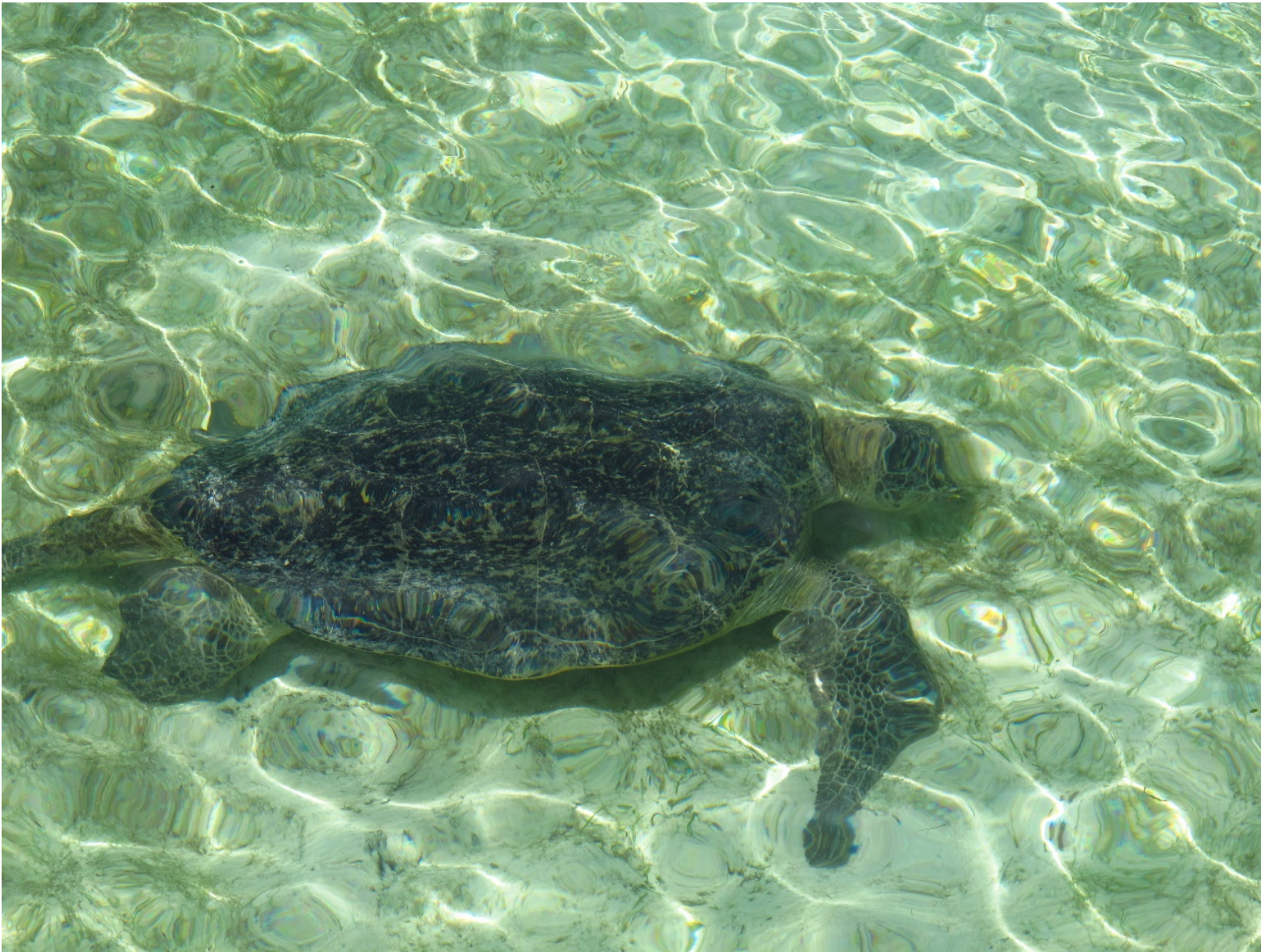
Typical fishing/
transportation
boat





Fisherman's Platform





Catching and selling Turtels





No ground
water
Collection of
rain water





Collection of rain water





Desalination
container

Visit of a desalination container





Building with
Ice making
machine





Ice making
machinery





Typical
Production of
Energy on an
outer island
in Indonesia





Diesel
Generator on
a Ressort at
Maratua





Solar- and Windenergy on Maratua



Solar- and Windenergy on Maratua





Battery for Energy Storage Maratua





New Solarfarms on Maratua





Food/Fish processing





Former
Chicken
Farm on
Maratua



Waste handling (on Maratua)



Traditional Shipbuilding





Sea Transportation





Sea Transportation





Typical Road





Cars (2015)





New Roads (2015)





New Airport





New Jetty, opened September 2015



Jetty 12 Month after opening





Hybrid solar power plant



Sea water distillation unit



Residence solar cell power plant



Rain (fresh) water tank collector

Energy:

- (Portable) Diesel Gen-set
- Small solar farms and cells
- One wind generator

Water:

- Rain
- Bottled drinking water
- No fresh water source

Land Transportation:

- No public transport
- Bad roads

Waste:

- Found waste at beach, sea, houses, and roads

Food:

- Most food transported from Mainland (except fish)

Students Projects

- New concept of marine tourism
including sustainable concepts for Energy, Water and Waste
- Airport Concept
Local Airport Design
- Cluster Resort Concept
Ecological and sustainable resort concepts
- Homestay Concept
Improvement and establishing standards of homestay quality
- Little Farming
 - Chicken farm and fruits/vegetables production



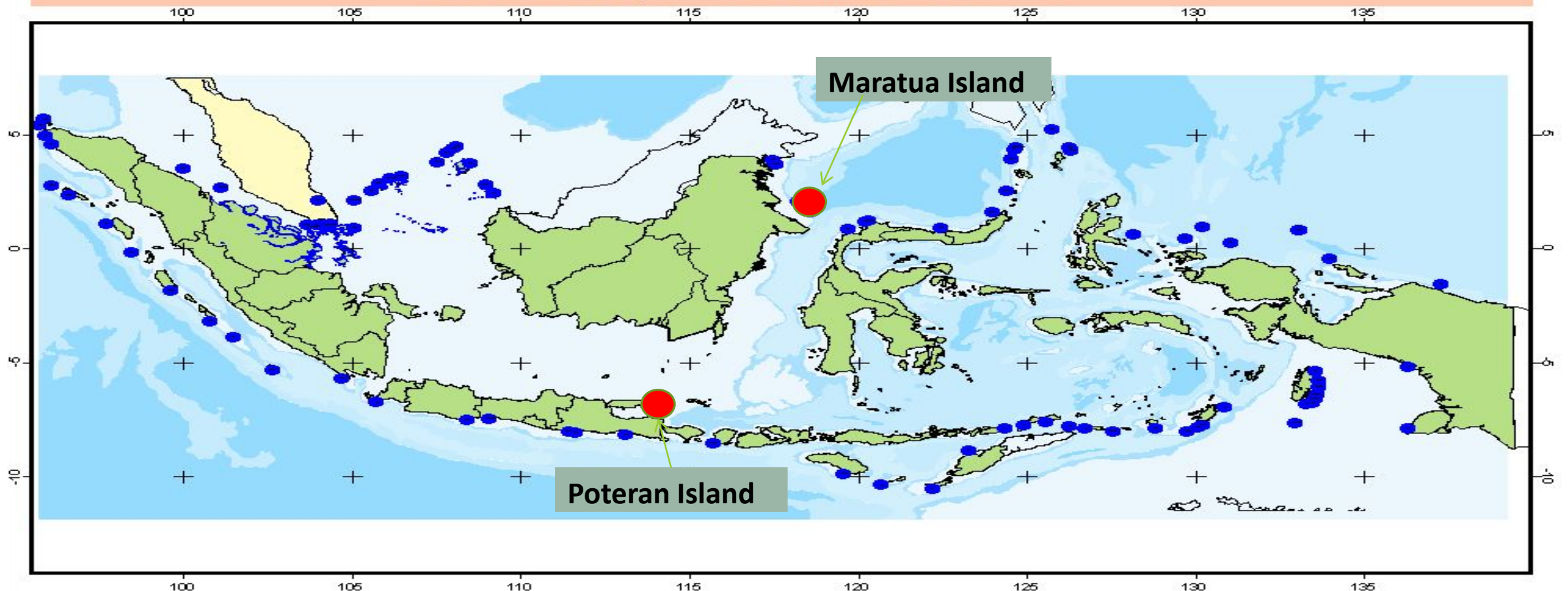
Poteran Island:

Moringa Oliviera value chain – from plantation up to end product



Indonesian Archipelago

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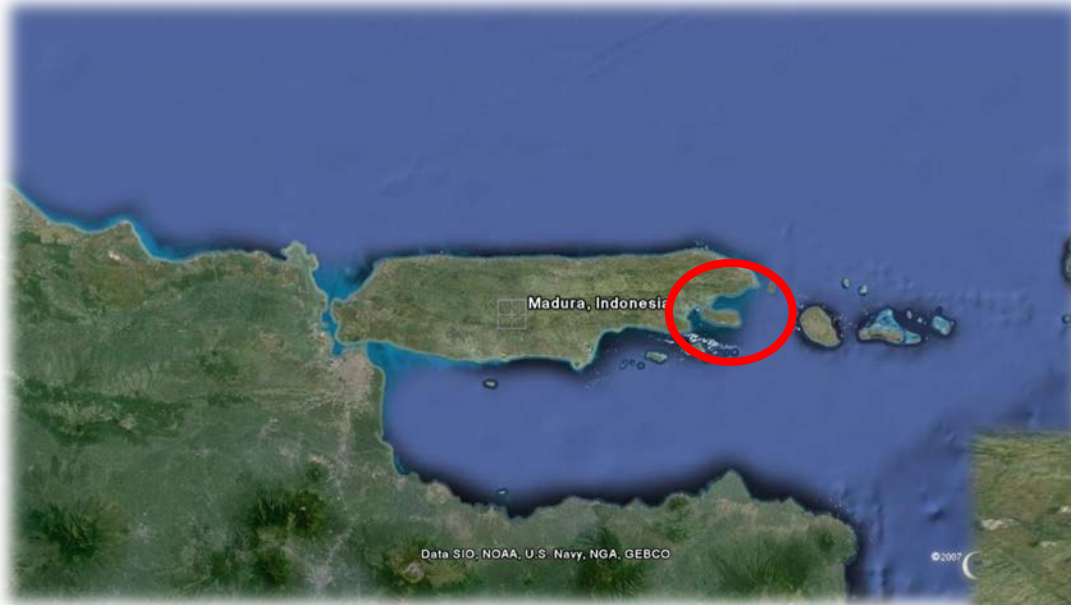
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Direktorat Tata Ruang Laut, Pesisir dan Pulau-pulau Kecil
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Departemen Kelautan dan Perikanan

Poteran Island



Poteran Island:
Total area - 49,8 km²
Part of Talango District, Sumenep
Consists of 8 coastal villages





Ferries to Poteran





Design Engineer of the wooden ferries (3/2016)





Local Breakfast





Ground
Water
Well





Moringa
Tree
and
symbiotic
pepper
plant





Moringa Products in Western World



Student Teams

Poteran

Moringa oleifera



Seaweed



- Island exploration, condition analysis & SWOT
- Market study & specification of value-added products
- Test plantation & demonstration
- Process & logistics design
- Engineering (bio fertilizer/pesticide, dryer, ...)
- Quality standard for products and processes (SOPs)
- Pilot project with local farmers

Students Projects

VALUE CHAIN OF MORINGA OLIVIERA:

CULTIVATION, PLANT PROCESSING & STABILISATION, PACKING,
SHIPPING (ON THE ISLAND)

EXTRACTION, REFINEMENT, QUALITY ASSURANCE (CENTRAL
PROCESSING FACILITY)

MARKETING & TRADE IN ASIA AND EUROPE (BASED ON BIO-PRODUCT
AND FAIR-TRADE CRITERIA)





2000
Moringa
trees
need to
be
planted



Moringa products developed by SR&DT

GREEN COOKIES MORINGA

Ingredients



Moringa powder
30 grams



Sugar powder
110 gram



Butter 235
grams



Flour 225
grams



Almond powder
110 gram



3 eggs



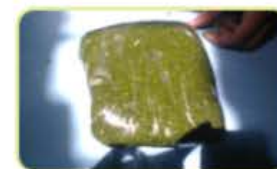
¼ teaspoon of
vanily



¼ teaspoon of
vanily

How to make

Mix all of the
composition



Moringa products developed by SR&DT

MORINGA LEAF JELLY



Ingredients



Sugar



Water



Seaweed Jelly



Boiling the Jelly



Moringa powder



Mix the Moringa powder



The moringa Jelly

Testimonials

Nadia Sanggra Puspita,

“As a Project leader of SR&DT Maratua team, I learn to manage people from diversity education background which is very challenging.

Arida Wahyu Barselia,

SR & DT for SIDI Week in 2014 gave a valuable chance for me to improve our study can be applied for the development small island.

Andre Prakoso,

SR&DT is a marvelous program specifically designed to create a super-team.

Nur Shabrina,

SIDI program serves as a platform for the students involved in SR&DT to “come down to Earth”, see the world beyond our idealistic perspectives; to really see for ourselves about what has been happening, what the problems are in the real world, particularly on the small island of Poteran



Testimonials

Heri Santoso

During at least eight months having teamwork in SIDI teams. SIDI was taught me not only how to give solution to small island, but also show me how to apply our knowledge to society wisely.

Gwyn Walesa,

At first, it was quite difficult to work together and compiling multi-consideration in developing ideas, but it was really challenging and exciting!

Epri Wahyu Pratiwi, ST.

Joining as a big family of SRDT is the best opportunity I ever had. We work as team to solve some problem based on our discipline.

Devi Hotnauli Samosir

The work I performed during the project make me learn about how to analyze the problem and find the best solution, how to make a good presentation, and also how to communicate well with others.



*You can be part of
changing the world
or
the world is changing you*

THANK YOU

WWW.SIDI-ITS.INFO

