

Final Evaluation Report

Your Details	
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Project Title	Wallacea Mangrove Expedition: Structure and Habitat of Mangrove Community in Northern Sumba, Indonesia
Application ID	21626-1
Grant Amount	£ 4950
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Date of this Report	26 Feb. 20

1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
<p>Exploration of habitat, structure and biodiversity of mangroves in Northern Sumba; with data representation from Central Sumba District (North Wendewa village and West Wendewa village) and East Sumba district (Rindi, Wanga, Watumbaka and Pandadita Village)</p>				<p>Structure: the sediment in the mangrove forest area was found to be quite unique; mud, sandy area, rocks; and not a few found as a combination between rocks and sandy mud.</p> <p>Mangrove Health: We found 12 species of mangrove and the canopy cover in the northern area of Sumba was found in high density status (hemispherical photography and analysis; spatial analysis). In Pandadita Village, we assumed that the mangrove trees are old, with very tall stands and large roots. However, the regeneration is very low, and we found out some irregularities, such as diseases that attack mangrove leaves (especially saplings) and stress that is indicated by new roots that fall from the top.</p>  <p>Benthic communities in the mangrove ecosystem in Northern Sumba: Benthos condition in his area is classified as sufficiently diverse. Economically valuable megabenthos are still in abundance.</p>

			
<p>Exploration of the structure and morphology of <i>Aegialitis annulata</i> (unique species) in Northern Sumba; with data representation from Central Sumba District (North Wendewa village and West Wendewa village) and East Sumba district (Rindi, Wang, Watumbaka and Pandadita Village)</p>			<p><i>Aegialitis annulata</i> is only found in three villages in the northern part of Sumba. This vegetation is quite unique because when we see from its location, this mangrove is categorised as mangrove-pioneer (means they grow in the front area), however the morphology of <i>A. annulata</i> does not really match the characteristic of mangrove-pioneer. In addition, this mangrove is categorised as a shrub, because of its relatively dwarf size (adult mangrove only reached adult human height (c. 160 cm). Furthermore, <i>A. annulata</i> will be fully immersed at high tide time. Unfortunately, not many people realise that they have an iconic mangrove in their area.</p> 

			
<p>Mangrove degradation mapping and analysis in Northern Sumba</p>			<p>The mangrove extent that we obtained not limited to northern Sumba region, we reached southern Sumba, we also calculate the extent using spatial analysis from 2000 - 2017 with the following information.</p> <p>2000 = 4608.12 ha 2008 = 3812.39 ha 2017 = 3832.23 ha</p> <p>High degradation was seen in the eastern part of Sumba, especially East Sumba District caused by illegal logging and utilisation of timber products for houses, charcoal, and land use change. This was confirmed by the local communities through an interview.</p> 
<p>Mapping of community activities around and in mangrove area in the Northern part of Sumba (14 villages in total)</p>			<p>The analysis results of mangrove degradation are in line with the activities mapping (14 villages) around and in mangrove area. 40% of respondents realise that mangroves are decreasing. Mangrove dependency by the local community was shown by the utilisation; (1) firewood (43.8%); (2) building materials (36.6%); (3) non-</p>

			<p>timber forest products (8.9%); and other utilisations (10.7%). Examples of other utilisation are related to their culture as substitutes for “pinang”, animal cage and fabric dyes.</p> 
<p>Raising awareness of mangrove conservation through socialization and training</p>			<p>Raising awareness is done by engaging with local communities, universities, schools and local government.</p> <p>Local communities: we conducted training and introduction of mangroves in three selected villages (considering the distance between village and mangrove). In addition, with the approach and understanding given to local community, a mangrove care group was formed called Friends of The Aegia Sumba- <i>Sahabat Aegia Sumba</i> (SAS) which has a mission to monitor, protect and preserve mangrove; especially in Walakiri and Rindi village (<i>Aegialitis annulata</i> was found in this two regions).</p> <p>University and Schools: mangrove conservation and awareness has been raised through workshop and field practice in collaboration with wira Wacana Christian university (UNKRISWINA) in Sumba by inviting students from middle - high schools and vocational schools. They also replanted 500 mangrove seeds in Pandadita beach as a mitigation action.</p> <p>Local government: we are helping the local government with mangrove area inventory in northern Sumba,</p>

				due to the lack of data they have related to mangrove area.
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled.

1. The distance travelled between villages is far and the terrain is not easy.
2. Infrastructure is not good, such as streets and toilets.
3. The distance is quite far and difficult from the main road to the mangrove area.
4. Agas (mangrove flies) attack in the mangrove forest.

3. Briefly describe the three most important outcomes of your project.

1. Action plan for mangrove conservation and awareness in north Sumba through workshop and practice in collaboration with Wira Wacana Christian University (UNKRISWINA) in Sumba including introduction, identification training and mangrove survey. Thirty-one participants from university students, middle-high school students and vocational school students. They also replanted 500 mangrove seeds in Pandadita Beach.



2. Local community formed called the "mangrove care group- Sahabat Aegia Sumba" (SAS) with the aim to monitor, protect, and preserve mangrove area especially in Walakiri and Rindi villages.
3. *Aegialitis annulata* is found to be susceptible to tourism and wood cutting activities, which can reduce environmental services as binding sediment. Furthermore, we found 12 species that are scattered in the northern Sumba region that continue to be degraded due to timber extraction.



4. Briefly describe the involvement of local communities and how they have benefitted from the project.

The local communities learnt and aware of the mangrove area around them; what happened when mangroves were lost. They aim to protect and monitor the mangrove area as their action of awareness from students to communities.

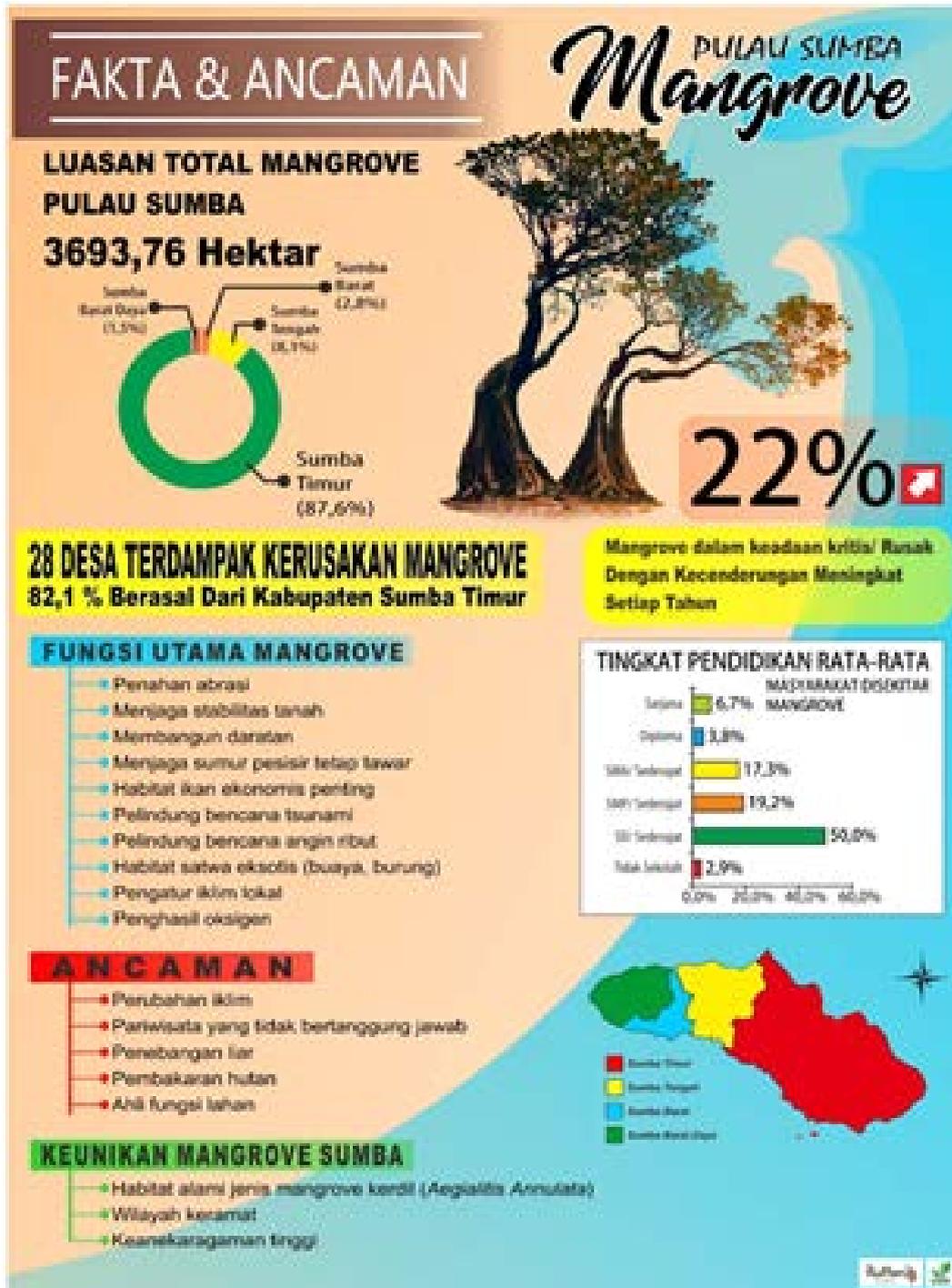
Local community formed group as their action to perform protection for the mangrove area, especially when they realised that they have a unique structure and mangrove species (*Aegialitis annulata*).

5. Are there any plans to continue this work?

1. Mangrove survey and monitoring training focus for students/ community/ SAS. So, we can do the monitoring yearly.
2. Implementation of monitoring and supervision for community-based activities.
3. Assistance for the processing and marketing of alternative economic resources from mangrove sustainably (woven/tenun, mangrove snacks and batik (Indonesian garment)).
4. Develop alternative income source from sustainable ecotourism based in Wakutumbaka and Rindi villages.
5. Southern Sumba exploration - we found out (spatial analysis) that the southern part of Sumba is still unexplored, and it has different yet unique structure from the northern area.
6. Produce a guidebook for mangrove in Sumba.

6. How do you plan to share the results of your work with others?

We published the result of the Wallacea Mangrove expedition in the form of infographics and formal reports that can be shared via social media (Instagram: @mangrovenusantara; Facebook: Mangrove Nusantara) and or email for other institutions or personnel that need it (we avoid printed reports). Examples of infographics that have been created and published are right side:



7. Timescale: Over what period was the grant used? How does this compare to the anticipated or actual length of the project?

The time allocation for this project is sufficient. We expect to be able to get a continuation of the previous project in order to optimise the previous work.

8. Budget: Provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Equipment and Material				
Transect tools	100	150	+50	tools and materials in Sumba are more expensive than other regions
Ekman grab	200	220	+20	more expensive including shipping cost
Communication and Internet access	100	200	+100	
Travel advances				
Accommodation/lodging	1000	1200	+200	We went to the field longer than expected due to the data collection
Transportation	1100	1100		Flight, Motorbike rent and fuel
Food/logistic	800	1000	+200	cost more because we invited 3 students to join the survey as a form of field training
Local guide	120	200	+80	The cost increases due to the data collection and the distance between villages
Data Analysis				
Benthos identification	105	120	+15	
Soil composition	300	300		
Mangrove identification (herbarium)	100	100		
Community work				
Printing material	200	200		for community engagement and workshop
Community meeting	300	300		community engagement, workshop
Administration				
Stationary	75	78	+3	
Total Direct Cost	4500	5168	+668	
Indirect cost (10%)	450	450		
Grand total	4950	5618	+668	<i>From office cash</i>

9. Looking ahead, what do you feel are the important next steps?

The important steps:

1. Monitoring the mangrove health (data collection and spatial analysis) yearly to see the trend of the mangrove area.
2. Continue to do workshops and training for local communities, government and academic institutions (especially elementary students to raise awareness since early stage) in order to raise the awareness of conservation, protection of mangrove area.
3. Southern Sumba exploration - in order to inventory the mangrove community and structure as well as capacity building.

10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?

Yes, we put Rufford Foundation logo on the materials, t-shirts, banner and publications from this project.

11. Please provide a full list of all the members of your team and briefly what was their role in the project.

Abigail Khesyia Makhas as leader. She does the budgeting, planning, coordination between teams as well as several approaches to stakeholders and data collection (Hemispherical photography to see the canopy cover).

Hanggar Prasetio - marine and coastal specialist. He is the coordinator of this project including community engagement, trainer and data collection.

Pramanta Kumaradatu - GIS specialist. Mapping of mangrove distribution and density as well as helping for data collection and GPS training for students.

12. Any other comments?

We do apologise to The Rufford Foundation for the delay due to a private issue. However, we did the best for this project and the main goal. Special thank you to The Rufford Foundation for funding this project and local community who are really supportive of this project especially with the formed of Friends of Aegia Sumba (SAS) and UNKRISWINA Mangrove Learning Group that has been formed from the result of this mangrove Wallacea exploration.