

**The Rufford Foundation  
 Final Report**

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Congratulations on the completion of your project that was supported by The Rufford Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to [jane@rufford.org](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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<b>Grant Recipient Details</b>	
<b>Your name</b>	Ekaningrum Damastuti
<b>Project title</b>	Participatory resource mapping to enhance community based mangrove management in Indonesia
<b>RSG reference</b>	14780-1
<b>Reporting period</b>	July 2015
<b>Amount of grant</b>	£5000
<b>Your email address</b>	<a href="mailto:damaseka@gmail.com">damaseka@gmail.com</a>
<b>Date of this report</b>	July 25 <sup>th</sup> , 2015

**1. Please 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>Increase the understanding and awareness on the importance of mangrove conservation for local livelihoods, protection from coastal hazard and biodiversity conservation</p>			✓	<p>The discussions about the importance of mangrove were held during the mapping process. Most of the participants realize the importance of mangroves for protection and livelihoods. They have experienced the protection given by mangroves. Few of them already used mangroves as food (leaves and seeds) and raw materials (fishing gear). Therefore exchange of knowledge occur along the process not only among the participants but also between the facilitators and participants. The concept of biodiversity conservation was rather difficult for the participants who mostly have low education. Nevertheless after translated to simple language such as the presence of birds, crabs, or certain species of mangroves, most of them could easily understand and was able to locate the mangrove areas with high biodiversity.</p>
<p>Improve management strategies to enhance community based mangrove management in practice</p>		✓		<p>The maps were intended to be the foundation to enhance mangrove management strategies. By understanding the mangrove ecosystems condition in their areas the communities were able to communicate to other stakeholders about their knowledge and their needs. In the last workshop, multiple stakeholders were invited to discuss the management strategies using the maps as the baseline information. A monitoring was conducted in June to check how the maps were used by the stakeholders received the final maps both the printed and digital version. In both villages the maps were used as the official village maps. The small version of the map were used by some local farmers association as the basic information inserted in the proposal on mangrove rehabilitation program. For the NGOs</p>

				<p>and government they use them as the basic information and documents to design and implement mangrove rehabilitation projects.</p> <p>Nevertheless to create an integrated and effective mangrove management strategies require more times and meetings between communities and related stakeholders. Therefore follow up projects are needed to fully achieve this objective.</p>
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**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).**

2.1. Local conflict and political situation

In one of the project sites (Bedono village) a conflict occur between one local NGO and village government. The conflict was triggered by corruption issue particularly involving the head of the village. Rumours on the involvement of some village officers spread out. The corruption case was at the stage of legal process, therefore it was difficult to communicate with the head of the village. Meanwhile, in this project he supposed to play an important role as the key person to open the network in the village, to open the discussion on mapping, to officially open and close the mapping exercise and to be involved in facilitating the mapping process. To deal with his absent, the village secretary was contacted as replacement. Although he was hesitating at the beginning, he could perform the task satisfactorily.

2.2. Women participation

Women participation was lower in the first site compare to the second site. There are different roles and position of women in both villages. In the first village women were often work at home or in the nearby manufactures. In the fishing household for example, it is common that the male fulfil the family needs through fishing, while female supported the households by performing the household work i.e. cooking, cleaning, nursing, and additional work to support the family income such as knitting fishing gears (i.e. trammel net) for sale. Therefore the village officers who involved in determining the participants for mapping wanted to exclude women from the mapping activities since they assumed that women have very limited knowledge about the mangroves in the village. Therefore a negotiation was made with them with the argument that women participation is important since they probably know places to collect mangrove resources especially *Avicennia sp* seeds and leaves commonly used for snacks production. Though still very limited but there were at least two women included in the mapping process. In the second site women were

very active in many village activities therefore it is easier to ask for their participation in the mapping process

### 2.3. Local facilitator and young villagers involvement

Among the unforeseen difficulties was the involvement of young villagers in the mapping process especially as facilitators. Most of the young villagers are students or workers in the nearby factories. They work during day time from eight in the morning till five in the afternoon. Whilst due to the difficult access some of the participants especially the village government officer only want to participate in the mapping process during the working days. Therefore most of the meetings were held on working days and some were held on Saturday. Nevertheless the young villagers still could not fully participate. The facilitators were then replaced by students from Geography faculty, Gadjah Mada University, Yogyakarta, who were hired to be facilitators. The decision was made due to some reasons: 1) facilitator who know how to use GPS was very useful and shorten the training time, 2) a network with faculty of Geography was already developed and there were many students interested to join the projects, 3) besides the two GIS expert, hiring students who know GIS helped the GIS processing stages 4) indirect transfer of knowledge between the community and the students about the mangroves and problem related to these ecosystems was also part of the benefits derived from the involvement of the students.

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

Three most important outcomes of my projects are:

#### 3.1. Exchange of knowledge and increasing awareness.

Most of the participants were aware on the importance of mangroves for protection. However only few of them knows the relationship between mangroves and fisheries and other mangrove services that support local livelihood. Therefore discussion on the importance of mangroves were held during the whole mapping process which stimulated the exchange of knowledge among participants. Important information related to mangrove condition in the past was among the discussed topics that made them aware on the impact resulted from mangrove destruction. Another important things resulted was the awareness that managing mangrove require the cooperation between different stakeholders.

#### 3.2. Provision of baseline information to develop mangrove management strategies.

The resource map resulted from the participatory mapping shows important information related to mangrove ecosystems in the village. The information include total size of mangroves areas, biodiversity zones which were identified through the

present of various birds species, seed production zones commonly harvested by locals for mangrove rehabilitation programs, abrasion zones, fishing ground, new rehabilitation areas and many others. Those information are needed as the foundation to create management strategies including the new location for rehabilitation, the right area for the new breakwater construction, vulnerable areas that need to be protected or replanted, as well as person or institution that can be involved in certain management activities. The method to use the map for management strategies was introduced during the final multi-stakeholder workshop.

### 3.3. Stimulate multi-stakeholder communication and bottom up approach

A multi-stakeholder meeting were held in the end of the mapping process in each sites. The stakeholders involved in the meeting were local communities, village government, related district government offices such as Marine and fisheries office and environmental office, and local NGOs. The meeting was intended to socialize the map and to demonstrate how to use the map to develop an integrated mangrove management strategies. Through this meeting the participants realised the importance of communication between different stakeholders for better mangrove management. The government found the meeting as useful for them to gather the opinion from local communities. The local communities also found it important as they could use such meeting to communicate their knowledge, experience and opinion to the government and NGOs. Their awareness on the importance of multi stakeholder communication was recorded in the dialogue during the final workshop.

## **4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).**

### 4.1. Local communities' involvement

In this project the communities were involved nearly in the whole processes except the GIS processing stage. Their involvement is described in detail below:

#### *a) Preparation*

The participation of village government were crucial during the preparation stage. Some discussions and consultations were made before starting the mapping process. The village governments provided the information on the general condition of the villages and the inhabitants. They also helped in suggesting the participants, venue and time suitable for mapping process involving people with different occupation and background. Invitations for participants were made together with the head of the village and distributed by village officers represented each sub villages.

*b) Introduction and commitment*

More villagers were involved in the beginning of the mapping process. They are representatives of different sub villages, village elder, women, and leaders of farmer and fisher associations. The early meeting discuss about what is mapping, how to do mapping and the benefits of the activities and the map for the communities. During the discussion, a statement of interest and willingness to participate in the whole mapping process was made by the participants. Furthermore the participants determined the mapping method and schedule for the next meeting. The process was similar in two project sites. The only difference is the method selected by the participants. In the first village (Bedono) they chose to use the scale map directly before ground truthing, whilst in the second village (Timbulsloko) they prefer to make the sketch map as the guidance to draw the map on the scale map.

*c) Sketch/scale mapping*

After the method was determined, the participants were then involved in drawing the sketch map and/or draw their village on satellite images and trained how to use GPS.

*d) Ground truthing*

A transect walk was then conducted to mark the location indicated in the sketch map or satellite image. In this process the participants were fully responsible in marking the point with GPS and record the information from GPS.

*e) Validation*

The participants were again involved in the validation process in which they evaluate the map made by the GIS team

*f) Official announcement and final workshop*

In the end of the project in each sites, all participants, other villagers and related stakeholders including the NGOs, sub district and district governments participated in the map official announcement and final workshop. During the final workshop all participants were shown how to use the map as the foundation in enhancing mangrove management strategies

#### 4.2. Benefits derived from the participatory resource mapping process

Through participating in the whole mapping process the local communities gain some benefits as follows:

- a) Exchange of knowledge among participants on vulnerable mangroves areas, potential threat not only for the ecosystems but also their safety and livelihood,

and potential resources that can be used to increase livelihood without damaging the ecosystems.

- b) Experience in mapping. Nearly all of the participants mentioned that it was their first experience to participate in such participatory resource mapping activity. They were not only learning about how to make a map or how to use GPS but also about their village conditions.
- c) Geo-referenced map. The maps produced through the mapping activities were returned back to the communities. Therefore, at the moment they have geo-referenced map which can be used to design mangrove management or village development strategies.
- d) Increasing confidence. Their involvement in the mapping process and the map resulted from the process had increased their self-esteem. They were more confident especially when speaking to the government or NGOs about the mangroves and their village condition as well as the support needed to develop their village.

## **5. Are there any plans to continue this work?**

The implementation of participatory resource mapping were well appreciated by local communities, the governments and NGOs. They found the map very useful as the baseline information to formulate mangrove management strategies and planning for the villages. Therefore I would like to expand this project to other villages and build more collaboration with other stakeholders to create an integrated mangrove management strategies. The officers from nearby village governments asked if similar project will be implemented in their villages.

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

The output of the projects are resource maps. Both the historical and present maps contain the information related to mangrove services and other human constructed features as agreed by the communities involved in the mapping exercise. The physical maps were given back to the communities through an inauguration ceremony conducted in the project sites i.e. Bedono and Timbulsloko villages. The digital version of the maps were already distributed to all related stakeholders who have interest in the management of mangroves ecosystems in the villages. These stakeholders include the village, sub district and district government especially marine and fisheries agency and environmental agency that attended the ceremony and NGOs such as KeSemat and Wetlands International. Furthermore I will distribute the digital map to more stakeholders such as the regional planning bureau, the Public Works department and other NGOs.

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

The Project was planned to be implemented in two sites, Bedono and Timbulsloko villages for the duration of 20 weeks. However, referring to the participatory nature of the project flexibility occur in the field. In practice the implementation of this project was actually finished more 20 weeks. The reason for the extension was mostly technical for example the delay in printing the map due to additional evaluation, the delay in distributing the result due to limited internet connection. Additional monitoring activity was also added few months after the mapping process was done. This activity was added to ensure that the objectives of the project are achieved. The detail plan and realization as well as the explanation of the changes are provided in the table below.

Activities	Plan/site (weeks)	Realization		Notes
		Bedono (weeks)	Timbulsloko (weeks)	
Assessment and approach to communities	2	1	1 week	The assessment was faster than planned because the expenditure for the temporary accommodation and travel to the sites were higher than budgeted. Therefore to control the expenditure the time was tightened. As a consequence we had to work harder during the assessment which was on average 12 hours per day to optimize the use of the car rented for this purpose.
Stakeholders identification	2 weeks	1weeks	1 week	The first week of our stay at the first and second villages were used to approach the village government, identify the actors involved in mangroves management and meet the key persons.
Technical preparation	1 week	1 week	1 week	The technical preparation include: preparing the equipment, invitation and team; and coordination with village government
Mapping exercise	1 week	2 week	3 weeks	The mapping process conducted in several meetings including the introduction, first and second meetings. The first village needed only two meetings, for introduction and scale mapping. Meanwhile, the second

				village need three meetings because they also want to make the sketch map before working with the scale map. The meetings were scheduled every week.
Ground truthing and validation	1 week	1 week	1 week	The time allocated for ground truthing or transect walk (including the preparation for the activity and facilitator) was one week, and the meeting allocated for each village to do the ground truthing with the participant was three days. The participants were divided in groups based on the number of the sub villages. Nevertheless the ground truthing was conducted less than three days. The first village needed two days and the second villages needed 1 day because the area are smaller and the access are easier compare to the first village.
GIS processing	2 weeks	4 weeks	5 weeks	The GIS processing was an iterative process. In practice it took longer than planned due to continue evaluation and additional information provided by participants. During the last meeting in the second site there were still some additional correction from the participants. Therefore some changes were made by the experts which required more time to revise the final map.
Total	9	10	12	
Report writing	1	4 (June-July)		The report writing took longer than expected because of some reasons: the delay in printing the final map in the second site; the dissemination process to some stakeholders took longer than expected due to poor internet connection used to download large map file, so I decided to send the result on CDs through mail from The Netherlands; I add monitoring as additional activities to see how local communities, government and NGOs utilised the map for mangrove management. I did the monitoring on June when I had the opportunity to visit the sites for my second fieldwork
Total project	20	26		

duration for 2 sites			
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**8. Budget: Please 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.**

Item	Budgeted Amount	Actual Amount	Difference	Comments
Fee for local facilitator and two GIS experts	1600	2458	858	The total amount budgeted was 2600.
Transport for workshop participants	1420	750	670	The total amount budgeted was 1920. The expenditure was lower than budgeted because the number of meetings were reduced into 7 meetings and the number of participants also varies in each meetings.
Transport and accommodation for research team	1000	2271	1271	The total amount budgeted was 3500. The actual expenditure was lower than budgeted because the number of team member was reduced from 4 to 3 persons and the living cost was lower because we were living at fisher's house thus we did not need to spend a lot of money for the accommodation.
Material and logistic for meetings and mapping	980	1020	40	The total amount budgeted was 1530. However the meetings was conducted less than planned (7 meetings in each village) . The number of participants also varies in each meetings.
<b>Total</b>	5000	<b>6499</b>	1499	The total budget proposed was 9554. The different between the total budget and the actual expenditure is 3055

The fund was first transferred to the Netherlands accounts in July and then transferred to Indonesian account. The total amount of fund in euro was €6230. The exchange rate was €1 = IDR 15,155. The total amount of the fund in Indonesian Rupiah was IDR 94,415,650. The application for another funding to EEPSEA was still in the process and was not approved yet during the project, therefore most of the additional expenditures were covered by my personal fund and few of them was

covered by Wageningen University. This was also the reason of reducing the number of meetings and mapping team (from 4 to 3).

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

Participatory resource mapping is a useful tool for the community to prepare mangroves management plan. The result of the mapping can be used as the tool to facilitate communication between local communities and other stakeholders interested in mangroves conservation or rehabilitation. Therefore, there are some follow up needed:

9.1. Spread the ideas on the benefits of participatory resource mapping as the tool to enhance community based mangroves management. This can be done through video and publication. I am currently in the process of editing the video and writing a scientific paper about participatory resource mapping implemented in the two project sites. The Rufford foundation will be acknowledged in both, video and scientific paper as the main funding of the project.

9.2. Follow up project. The follow up project can be: extending the project area or continue with the next project such as mapping the future scenario of mangrove management. Arranging and facilitating multi-stakeholder meeting to develop integrated and comprehensive mangrove management planning is of the most important next step that should be taken into account in the follow up project.

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

The Rufford Foundation logo was used on the resource map produced during the project. The logo was also used on the banner made for the official announcement of the resource map to the community, government and NGOs involved in mangroves management in the project sites. The logo will also be used in the video about the project.

## **11. Any other comments?**

Lesson learned for future project

There are some important factors that need to be considered when conducting participatory resource mapping. Those factors are the average education level of the villagers, local politics and local culture. Knowledge on the communities' education

level is important to prepare the right mapping method that will be offered. The lower the education level the simpler the method chosen. Nevertheless using more complicated methods such as multimedia and GIS are also possible. Implementing GIS or multimedia require more efforts (including time and money) and technical preparation such as good internet connection and other equipment.

Local politics and local culture should be taken into account since both are sensitive matters and can influence the success of the project. As mentioned in the previous section this project was rather difficult to be applied in the first site due to local political problems involving the head of the village. Furthermore the knowledge on local culture can be collected from the village elder or the head of the village. It is particularly important to decide when and where the meetings should held, who should be involved and how the meeting should be held (following the local custom), hey the method that commonly used to invites people to come in a meeting, and how much transport fee should be given to each participants. The transport fee has become common in many rural areas in Indonesia. Sometimes people come to attend a meeting merely to get the transport fee. Therefore if the transport money is necessary and how much, should follow the local rule. If we gave higher that the other project, we will indirectly increase the expectation of the locals and would affect the other project that provide lower transport fee.

## **Pictures**



Sketch mapping in Timbulsloko village



Scale mapping in Bedono village



Transect walk Bedono village



Transect walk Timbulsloko village



Validation Timbulsloko village



Validation Bedono village



Final workshop, multi-stakeholder meeting, Bedono village



Final workshop, multi-stakeholder meeting, Timbulsloko village



Final workshop with most of the participants, Bedono village



Final workshop with most of the participants, Timbuloko village