

## The Rufford Small Grants Foundation

### Final Report

Congratulations on the completion of your project that was supported by The Rufford Small Grants 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**

Grant Recipient Details	
Your name	Nguyen Viet Luong
Project title	Mangrove forest structure and coverage change analysis using Remote Sensing and Geographical Information System technology: a case study of Can Gio Mangrove Biosphere Reserves, Ho Chi Minh city, Viet Nam
RSG reference	26.4.2010
Reporting period	Final report
Amount of grant	£6000
Your email address	<a href="mailto:nguyenluongnc@gmail.com">nguyenluongnc@gmail.com</a>
Date of this report	30.5.2011

**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
Land cover type mapping using multi-remote sensing data			✓	Please see final report
Change detection of land cover in mangrove forest using multi-remote sensing data			✓	Please see final report
Investigation, evaluation and monitoring of criterions to production and quality of mangrove forest			✓	Please see final report
Interpretation key of satellite imagery for mangroves forest			✓	Please see final report
Methodology provide the application of remote sensing and GIS technology in mangrove forest study			✓	Please see final report
Provide recommendations for the use of remote sensing and GIS technology in mangrove forest			✓	Please see final report
Provide technical training for CGBR's staff on using remote sensing & GIS technology			✓	Please see final report
Propose measure to management, conservation, rehabilitation and development of mangrove ecosystem in Can Gio Biosphere Reserve			✓	Please see final report

**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).**

I did not encounter any unforeseen difficulties in the process of implementing this project.

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

- Build the land cover maps of mangrove forest in Can Gio Biosphere Reserve of three times are 1999, 2004 and 2009. Build the land cover change maps of mangrove forest in Can Gio Biosphere Reserve two periods 1999-2004 and 2004-2009 from satellite data of 1999, 2004 and 2009 (SPOT satellite).
- From the research results of this project; the Can Gio Mangrove Board, Vietnamese Government, prepare plans and specific in time or warning, to the damage and threat to the mangrove ecosystem here. For example, impact measures silvicultural techniques such as thinning, localised farming, restored, planted, cleaning and feeding to forest ecosystems of mangroves logically. More details, support managers and planner can calculate as workload, number of sources of seedlings, human resources, funding sources etc. for Can Gio Biosphere Reserve.
- Assist local officials, who directly manage mangroves are looking, thinking and understanding of the advantages of remote sensing and GIS technology in the management

for mangrove resources, through time working in collaboration with Can Gio Biosphere Reserves.

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

The fieldwork is important, and very difficult. Therefore, during the field time, we had needed the help of technical staff in the Can Gio Biosphere Reserve and local people in Can Gio district. The benefits that the project gives them such as;

For technical staff:

They have been practising new methods in fieldwork, quick, simple and modern. They understand the approach to remote sensing and GIS technologies through discussions, meetings, and short training.

For local people:

They have a better understanding of the role of mangrove ecosystems; it is not simply the supply of forest products, fisheries resources, etc. In addition, and the mangrove ecosystems have a role to protect environment habitats, protection of their own lives. Especially today, the climate change is increasingly negative impact on the lives of them.

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

As classified by Prof. Dr. Phan Nguyen Hong (1984), There are four main zones of mangrove forest in Vietnam, delineated geographically from north to south:

- From Mong Cai to Do Son
- From Do Son to Lach Truong (Thanh Hoa province)
- From Lach Truong to Vung Tau province
- From Vung Tau to Ha Tien province

Can Gio mangrove forest (where implementation of this project) lies in the fourth zone. Four zones of mangrove forests above have the different ecological conditions, species composition, density and species structure etc. Therefore, author would like to continue to support funding from RGS for the study of three mangrove zones as mentioned above.

Continue to seek other funding sources for the organisation of training courses for technical staff with a large scale about application of remote sensing and GIS technology in the management of mangroves in Vietnam.

I intend to implement my PhD programme at Can Gio Biosphere Reserves.

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

I agree to publish the final report of this project in the website of RSG, so other people can download this paper. I also share this study to my colleagues and students at the Vietnam Academy Science and Technology and Can Gio Biosphere Reserve and other institutes. Especially, in the

implementation time of this project, I have published two articles related to the study region of the project are;

- First published “*Land Covers Change Analysis of mangrove in Vietnam using Remote Sensing and GIS technology*” at the International Symposium on the Biodiversity Associated with Mangrove Ecosystems in Southeast Asia, Hanoi, Vietnam on 17 May 2010 and;
- Second published “*Estimation of Mangrove Forest Biomass for Assessment of Carbon Sequestration Using Remote Sensing and GIS Technology. A case study in: International Biosphere Reserve Can Gio, Vietnam*” at Space Technology and Application Workshop of Vietnam Academy of Science and Technology in December 2010.

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

The project implementation period was 1 year from date of receipt of fund in Vietnam (June 2010). Therefore, the duration of the study is consistent with the plan (12 months).

**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
Satellite images and building maps of three time	2000	2000	0
Domestic travel costs (two times)	1000	1000	0
Accommodation	400	400	0
Food	400	400	0
Payment to local team for: helping to implement project’s activities at study sites such as field surveys	600	600	0
Payment for training, meeting and discuss	800	800	0
Miscellaneous (communication, newspapers, shoes, medicine, substance print and photocopy, etc.)	300	300	0
Data analyses and final report writing	500	500	0
<b>Total</b>	<b>£6000</b>	<b>£6000</b>	

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

To publish this paper in international journal or will publish a book about the application remote sensing and GIS technology in research in Can Gio Mangrove Biosphere Reserve.

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

No.

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

This fund (RSG) is very useful and important for researchers in developing countries, especially young researchers like me, it is the source of encouragement in the research work and have the opportunity to implement new ideas to contribute for nature conservation, self-improvement and research capacity.

I met Josh Cole (Grants Director) in Vietnam, and I have presented my project to him. However, have a few people attending this meeting, who had received funds from the RSF. If possible, a year or 2 year or 3 year per time, the RSG can organise a workshop for all members to meet and requirement them presentation of their project had done, so we have a chance to meet and exchanges with colleagues and travel cost and stay cost ... have got pay by RSG. Setup scale meeting should be small regions, example as Southeast Asia region.