PREDICTION MODELS FOR ESTIMATING ABOVE GROUND BIOMASS AND CARBON SEQUESTRATION POTENTIAL IN MANGROVE FORESTS IN MALAYSIA USING REMOTE SENSING

BY :

NURUL NADIAH BINTI MOHD FIRDAUS HUM
PROF. DR. MOHD NAZIP SURATMAN
PROF. MADYA. Sr. DR. JASMEE JAAFAR

AUGUST 2014

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2. Letter of Offer (Research Grant)

UNIVERSITI TEKNOLOGI MARA

Rujukan Kami : 600-RMI/DANA 5/3/RIF (391/2012)
Tarikh : 13 September 2012

Puan Nurul Nadlah Mohd Firdaus Hum
Fakulti Sains Gunaan
Universiti Teknologi MARA
40450 Shah Alam

YBhg. Profesor/Tuan/Puan

KELULUSAN PERMOHONAN DANA KECEMERLANGAN (RIF) 09/2012

Tajuk Projek	:	*Prediction Models For Estimating Above Ground Biomass And Carbon Sequestration Potential In Mangrove Forests In Malaysia Using Remote Sensing*
Kod Projek	:	600-RMI/DANA 5/3/RIF (391/2012)
Kategori Projek	:	Fakulti Berintensif Penyelidikan
Tempoh	:	01 September 2012 – 31 Ogos 2014 (2 Tahun)
Jumlah Siling Peruntukan	:	RM32,000.00
Peruntukan Tahun Pertama	:	RM10,000.00
Ketua Projek	:	Puan Nurul Nadiah Mohd Firdaus Hum

Dengan segala hormatnya perkara di atas adalah dirujuk.

2. Sukacita dimaklumkan pihak Universiti telah meluluskan cadangan penyelidikan YBhg. Profesor/tuan/puan untuk membiaya projek penyelidikan di bawah Dana Kecemerlangan UiTM.

3. Bagi pihak Universiti, Institut Pengurusan Penyelidikan (RMI) mengucapkan tahniah kepada YBhg. Profesor/tuan/puan di atas kejayaan ini dan seterusnya diharapkan berjaya menyiapkan projek ini dengan cemerlang. Untuk makluman, penggunaan peruntukan adalah tertakluk kepada Garis Panduan Fakulti Berintensif Penyelidikan. Peruntukan tambahan akan diberi setelah laporan berkala dihantar kepada RMI dan berjaya menghasilkan sekurang-kurangnya satu (1) penerbitan berindeks dalam SCOPUS/ISI/ERA.

4. Untuk tujuan mengemas kini, pihak YBhg. Profesor/tuan/puan adalah diminta untuk menyusun perancangan semula bajet yang baru dan mengisi borang setuju terima projek penyelidikan dalam tempoh dua (2) minggu. Selain itu, kertas cadangan lengkap juga harus dikemukakan dalam tempoh tiga (3) bulan dari tarikh surat ini. Bersama-sama ini disertakan tatacara pengurusan projek penyelidikan untuk rujukan dan perhatian pihak YBhg. Profesor/tuan/puan.

Sekian, harap maklum.

"SELAMAT MENJALANKAN PENYELIDIKAN DENGAN JAYANYA"

Yang benar

PROFESOR DR ABU BAKAR ABDUL MAJEED
Penolong Naib Canselor (Penyelidikan)

: Disertakan

Penolong Naib Canselor (Penyelidikan) : 603-5544 2094/2095
Bahagian Penyelidikan : 603-5544 2097/2091/2098/2101/5521 1462/1463
Bahagian Perundingan : 603-5544 2100/2787/2092/2093
Bahagian Inovasi : 603-5544 2750/2747/2748
Bahagian Penerbitan : 603-5544 1425/2795
Bahagian Sokongan ICT : 603-5544 3097/2104/5521 145[illegible]
Bahagian Sains : 603-5544 2098/5521 1463
Pejabat Am : 603-5544 2057/5521 1636/5543 7907
Penolong Pendaftar : 603-5544 2096
Fax : 603-5544 2096/2767
Unit Kewangan Zon 17 : 603-5544 3404/2096
: 603-5521 1386/3404

3. Acknowledgements

The author would like to thank Universiti Teknologi Mara (UiTM) Shah Alam for sponsoring and funding the project and Faculty of Applied Sciences for their facility. The author also would like to thank Kedah Forestry Department for given permission to enter and conducted the sampling in Kedah. All material and equipment for sampling funded under Universiti Teknologi Mara (UiTM) RESEARCH INTENSIVE FACULTY research grant 600-RMI/DANA 5/3/RIF (391/2012) Appreciation and gratitude also goes to those who involved directly and directly in order completing this research including:

1. Prof. Dr. Mohd Nazip Suratman
2. Prof. Madya. Sr. Dr. Jasmee Jaafar
3. Siti Nor Shakila Binti Wan Abdullah
4. Tengku Hashim Bin Tengku Ngah
5. Siti Minah Binti Mustafa
6. Tengku Mohd Sanusi Bin Tengku Hashim
7. Yusuf Bin Darus
8. Mohd Hafiz Bin Yusuf
9. Rosli Bin Arsyad
10. Che Mohd Faziro Bin Che Adam
11. Mohammad Helmi Bin Samsuddin

5. Report

5.1 Proposed Executive Summary

Mangrove forests are considered as unique and important ecosystems that occupied the intertidal zone of protected shorelines, 75% of tropical and sub-tropical countries has coastal muddy flat fringed with mangroves. However the wrath of Mother Nature coupled with human activities has become a primary cause of mangrove loss. Their degradation could affect the ecological stability of coastal zones. In contrast to tropical rainforests, mangroves lack high level of research and conservation efforts, which result in limited understanding of these ecosystems. The need for a more efficient method of mangrove inventory prompts this research into supplementing ground-based survey with information from satellite remote sensing. Remote sensing offers a cost-effective ways to monitor natural resources. The objectives of this study are (1) to establish relationships between spectral radiance recorded by the Landsat TM imagery and mangrove stand parameters, (2) to develop predictive models for estimating above ground biomass (AGB) and carbon sequestration of mangrove forests. This study will be conducted in the selected mangrove forests throughout Kedah. The estimates of above-ground biomass (AGB) of mangrove species will be calculated using published allometric functions for mangrove species in 20 m x 20 m quadrats randomly set up in the study areas. A total of 80 mangrove stands will be sampled. The field data will be collected include height, diameter at breast height (DBH), density, crown width and crown closure. The relationships between these attributes and Landsat TM data will be analysed by calculating Pearson's correlation coefficients (r) prior to modelling. Parameter variables will be related to AGB and carbon sequestration includes TM bands and several vegetation indices. An ordinary least squares (OLS) estimator will used to develop multiple linear regression models. "Good" model candidates will be selected based on an analysis of the usefulness of the variables in prediction. A site suitability study will be introduced for further rehabilitation process of mangrove. Results from this study are expected to be useful in strategizing conservation measures to ensure the sustainability of mangrove ecosystems.