



KEMENTERIAN  
PENDIDIKAN  
MALAYSIA

**FINAL REPORT**  
**GERAN PENYELIDIKAN PENGURUSAN BENCANA BANJIR**  
Laporan Akhir Skim Geran Penyelidikan Fundamental (FRGS)  
Tahun 2015

**A RESEARCH TITLE:** Disaster Relief and Preparedness: Enhancing Supply Chain Management  
System to Support Effective Flood Disaster Relief Operation

**YEAR:** 2015

**THEME CODE:** 1.0  
(Please refer attachment)

**SUBTHEME CODE:** 1.8

Please Tick (✓)

**PHASE:** 01: Pre-Disaster

02: During Disaster

03: Post-Disaster

**AREA:** 01: Preventive

02: Preparedness

03: Rescue and Recovery

04: Adaptation

05: Mitigation

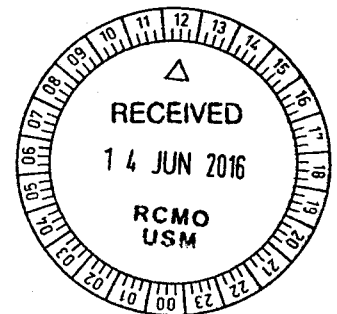
**START DATE:** 1 April, 2015

**END DATE:** 30 April, 2016

**PROJECT LEADER:** Wahidah Husain

**I/C / PASSPORT NUMBER:** 630301-08-5770

**PROJECT MEMBERS:** 1. Prof Madya Dr Zurinahni Zainol  
(including GRA/RA/RO) 2. Prof Madya Dr Nuraini Abd Rashid  
3. Dr Azli@ Meor Azli Ayub  
4. Dr Syarifah Mashita Syed Mohamad  
5. Huda Binti Omar (RA)  
6. Najla Sadiq Binti Mokhtar (RA)



**PROJECT ACHIEVEMENT** (Prestasi Projek)

<b>B</b>	<b>ACHIEVEMENT PERCENTAGE</b>			
	Project progress according to milestones achieved up to this period	0 - 50%	51 - 75%	76 - 100%
	Percentage (please state #%)			100%
	<b>RESEARCH OUTPUT</b>			
	Number of articles/ manuscripts/ books <i>(Please attach the First Page of Publication)</i>	<i>Indexed Journal</i>		<i>Non-Indexed Journal</i>
		Jurnal Teknologi (Scopus) – Submitted “Enhancing Supply Chain Management System to Support Effective Flood Disaster Operations”		
	Conference Proceeding <i>(Please attach the First Page of Publication)</i>	<i>International</i>		<i>National</i>
		International Conference on Computer and Information Sciences – Accepted, to be published in August 2016 “A proposed Framework on Enhancing SCM System to Support Flood Disaster Relief Operations”		
	Intellectual Property <i>(Please specify)</i>	-		
	Number and title of Policy Paper / SOP / Technology Solution <i>(Please specify)</i>	1. 2. 3.		

**HUMAN CAPITAL DEVELOPMENT**

Human Capital	Number				Others (please specify)
	On-going		Graduated		
Citizen	Malaysian	Non Malaysian	Malaysian	Non Malaysian	
<b>No. PHD STUDENT</b>					
Student Fullname: IC / Passport No: Student ID:					
<b>No. MASTER STUDENT</b>					
Student Fullname: IC / Passport No: Student ID:					
<b>No. RA/RO</b>					
Student Fullname: IC / Passport No: Student ID:			(1)Huda Omar (920202-07-5476) (2)Najla Sadiq Mokhtar (891205-07-5340)		
<b>Total</b>			2		



**EXPENDITURE (Perbelanjaan) as Borang K1(RMG)**

**C Budget Approved (Peruntukan diluluskan) : RM 51, 400.00**  
**Amount Spent (Jumlah Perbelanjaan) : RM 48,524.97**  
**Balance (Baki) : RM 2,875.03**  
**Percentage of Amount Spent : 94.41 %**  
*(Peratusan Belanja)*

**ADDITIONAL RESEARCH ACTIVITIES THAT CONTRIBUTE TOWARDS DEVELOPING SOFT AND HARD SKILLS**  
*(Aktiviti Penyelidikan Sampingan yang menyumbang kepada pembangunan kemahiran insaniah)*

<b>International</b>		
Activity	Date (Month, Year)	Organizer
(e.g. Course/ Seminar/ Symposium/ Conference/ Workshop/ Site Visit)		
<b>National</b>		
Activity	Date (Month, Year)	Organizer
(e.g. : Course/ Seminar/ Symposium/ Conference/ Workshop/ Site Visit)	Workshop - July, 2015 Tumpat Kelantan Workshop Banjir – Sept, 2015 Persidangan Kajian Bencana Banjir 2014 – April 2016	Majlis Daerah Tumpat KPT, UTM KPT, UTM

E	<b>PROBLEMS / CONSTRAINTS IF ANY</b> ( <i>Masalah/ Kekangan sekiranya ada</i> )
F	<b>RECOMMENDATION</b> ( <i>Cadangan Penambahbaikan</i> )
	<p>The proposed approach only involves four major mechanisms: (1) demand forecasting (2) determination of distribution priority using matching supply and demand algorithm, (3) consumption trend analysis and (4) information visibility. However, there is still a great potential for improving the operations performance of emergency logistical distribution. Firstly, is the integrating of more elaborate emergency logistics resource allocation technique and to evaluate logistics management of disaster relief operations. Secondly, on information visibility can be improved if appropriate logistics application for disaster relief operations is available and hence development of appropriate applications is necessary. Finally, the SCM coordination model may be extended to formulate best practices in flood disaster relief operations.</p>
G	<b>RESEARCH ABSTRACT – Not More Than 200 Words</b> ( <i>Abstrak Penyelidikan – Tidak Melebihi 200 patah perkataan</i> )
	<p>Insufficient coordination of supply and demand management during flood disaster can hold back the process of goods delivery to the flood victims at the right time, in the right amount and at the right location. Poor matching of the supply and demand can cause delay in decision making process in resolving immediate needs during critical situation. A three-phase supply chain model consists of pre-disaster (preparation), during disaster (response), and post-disaster (recovery) is proposed to overcome the problems. Subsequently, a web-based supply chain management system is developed to improve the procedure in managing inventory and delivery goods to flood victims. A matching algorithm is applied to optimize the process of matching supply and demand. Consumption trend analysis is added to support recommendation process during critical situation such as shortage of food supplies. Geographical-mapping and dashboard tools are integrated into the system for easy and quick display of information to enhance the decision making process. The system will provide quick response to the real needs of the affected areas in a disaster relief supply and demand network. Once the system is fully implemented and deployed, it will certainly benefit the society, either the disaster relief operation centres, the flood victims, and the public.</p>

	<p><b>Date</b> : 13 June, 2016  <b>Tarikh</b></p> <p><b>Project Leader's Signature:</b>   <b>Tandatangan Ketua Projek</b></p>
H	<p><b>COMMENTS, IF ANY/ ENDORSEMENT BY RESEARCH MANAGEMENT CENTER (RMC)</b>  <i>(Komen, sekiranya ada/ Pengesahan oleh Pusat Pengurusan Penyelidikan)</i></p>
	<p>.....</p> <p>.....</p> <p>.....</p> <p><b>Name:</b>  <b>Nama:</b></p> <p>PROF. DR LEE KEAT TEONG  Pegarah  Pejabat Pengurusan &amp; Kreativiti Penyelidikan  Universiti Sains Malaysia</p> <p><b>Signature:</b>  <b>Tandatangan:</b> </p> <p><b>Date:</b>  <b>Tarikh:</b> 17/6/16</p>

1e: JPNP / USMPGLIVE / PKOMP

Program Code: Votebook9100

Current Program : Votebook (Header)

Current Date : 14/06/2016 11:38:10 AM

Version: 15.124, Last Updated at 10/06/2016

DB: 13.02, 9/27/2010 VB: 13.01, 3/14/2011

Switch Language : English / Malay

Wildcard : eg. Like 100%, Like 10%1, Like %1

Element 1:

Element 2:

Element 4:

Element 5:

Year:

Excel	Budget Rule	Budget Control	Account Description	Budget Account Code	Roll over	Budget	Cash Received	Advanced	Commit	Actual	Available	Percentage
Excel 528	L		Pembangunan Penyelidikan	203.111.0.PKOMP.6711480	2,713.48	-801.08	0.00	0.00	0.00	1,912.40	0.00	0.00%
Excel 529	L		Pembangunan Penyelidikan	203.221.0.PKOMP.6711480	4,730.75	0.00	0.00	0.00	0.00	1,866.80	2,863.95	0.00%
Excel 529	L		Pembangunan Penyelidikan	203.227.0.PKOMP.6711480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
Excel 529	L		Pembangunan Penyelidikan	203.229.0.PKOMP.6711480	5,000.00	801.08	0.00	0.00	1,800.00	4,000.00	1.08	0.13%
Excel 530	L		Pembangunan Penyelidikan	203.335.0.PKOMP.6711480	10.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00%
Excel 552	0		Income item	203.777.0.PKOMP.6711480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
	552	0	SubTotal		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
	9999		GrandTotal		12,454.23	0.00	0.00	0.00	1,800.00	7,779.20	2,875.03	0.00%