SIAP
Sustainable Infrastructure Assistance Program

Operational applications of Geo4**IRBM** products in Flood Risk Management EWSIP Sub-Projects

17th June 2019
International Training Earth Observation Product ESA at LAPAN

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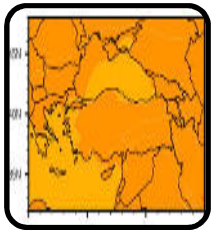
Basin Scale and Subproject Scale

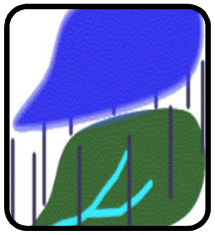
Climate Change Modelling



- *Scope:* Climate change projections and anomalies

- *Database:* Temperature, Precipitation and Evaporation

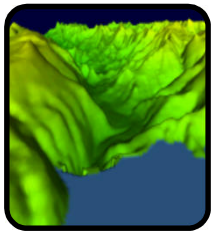
Hydrologic Modelling



- *Scope:* Evaluation of Rainfall to Runoff processes

- *Database:* Hydrometeorological network

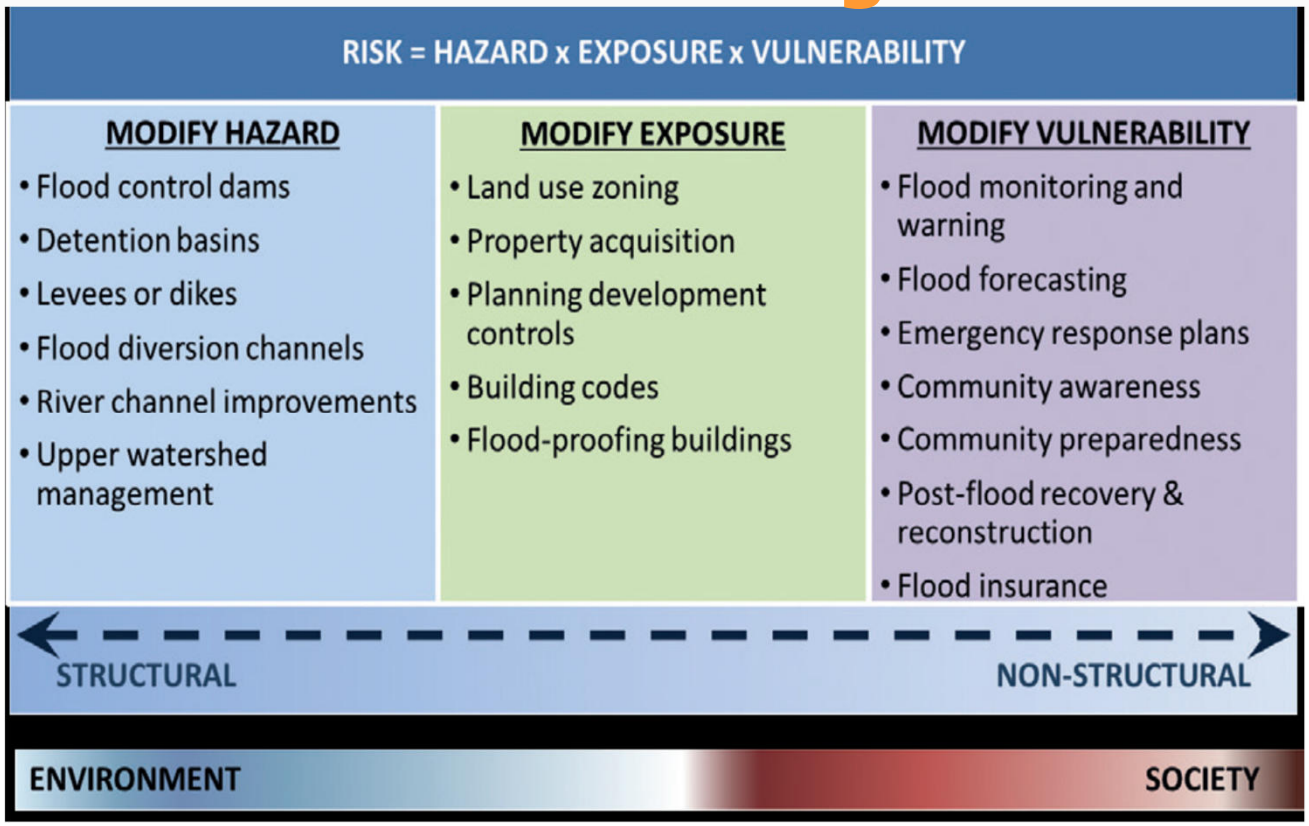
Hydraulic Modelling



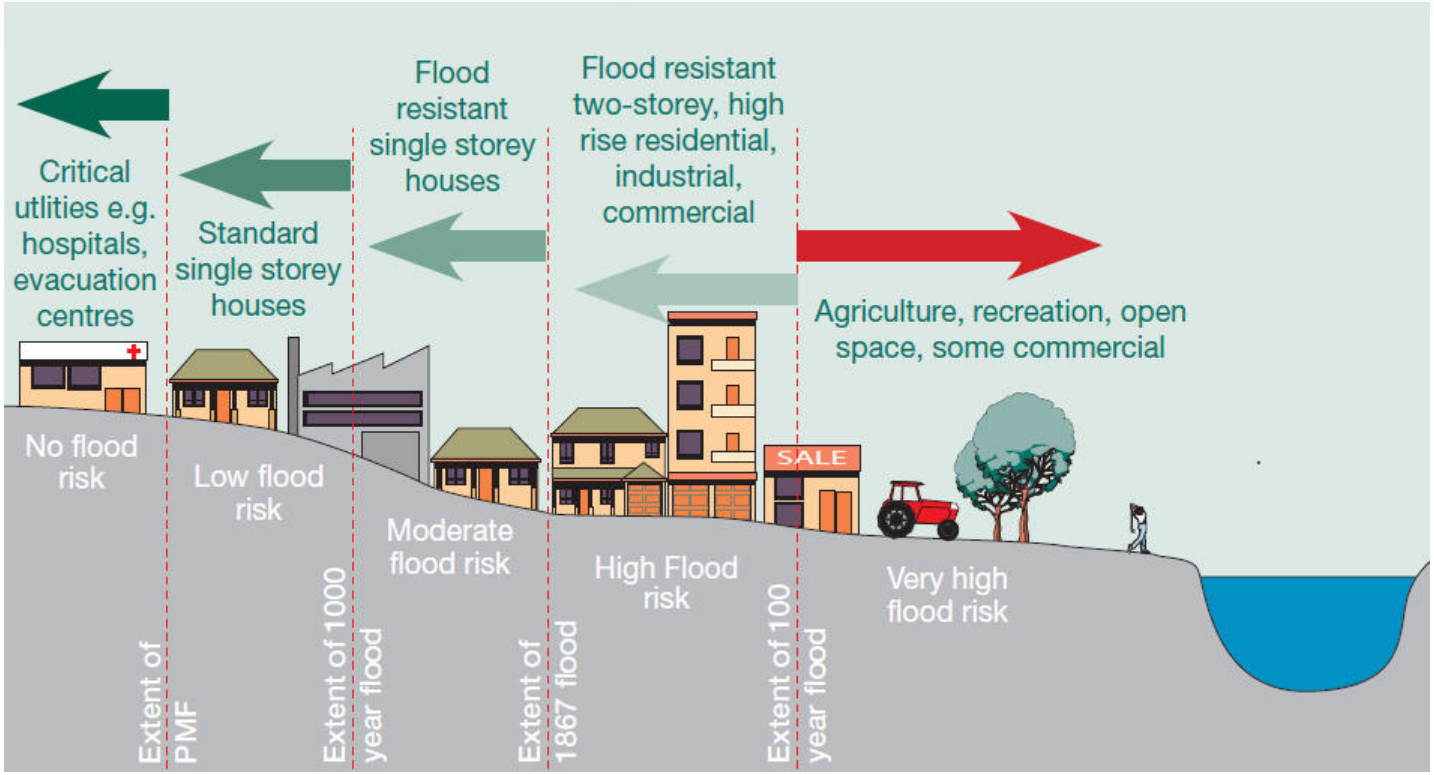
- *Scope:* Evaluation of Runoff to River hydraulics

- *Database:* Flow gage network

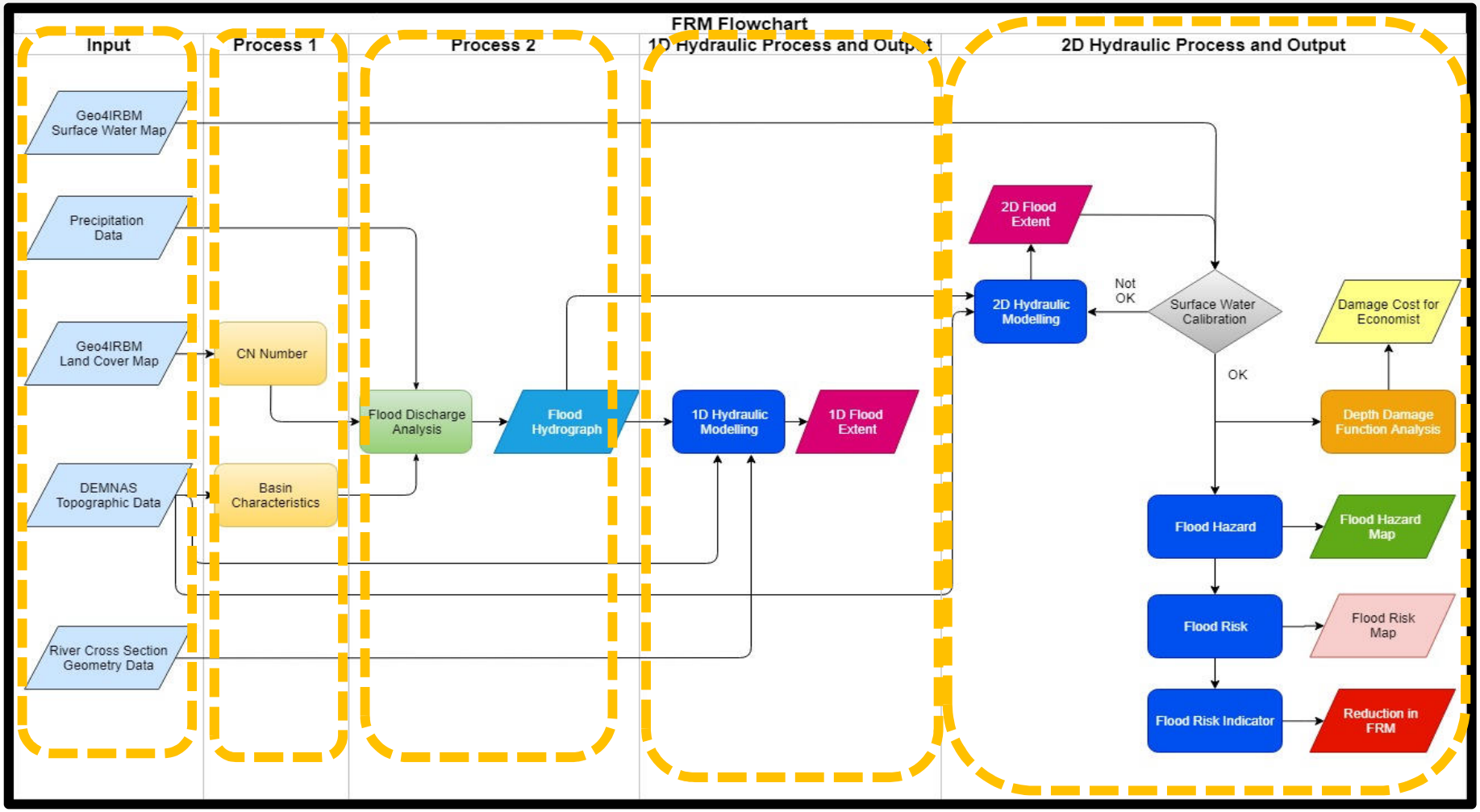
Flood Risk Management



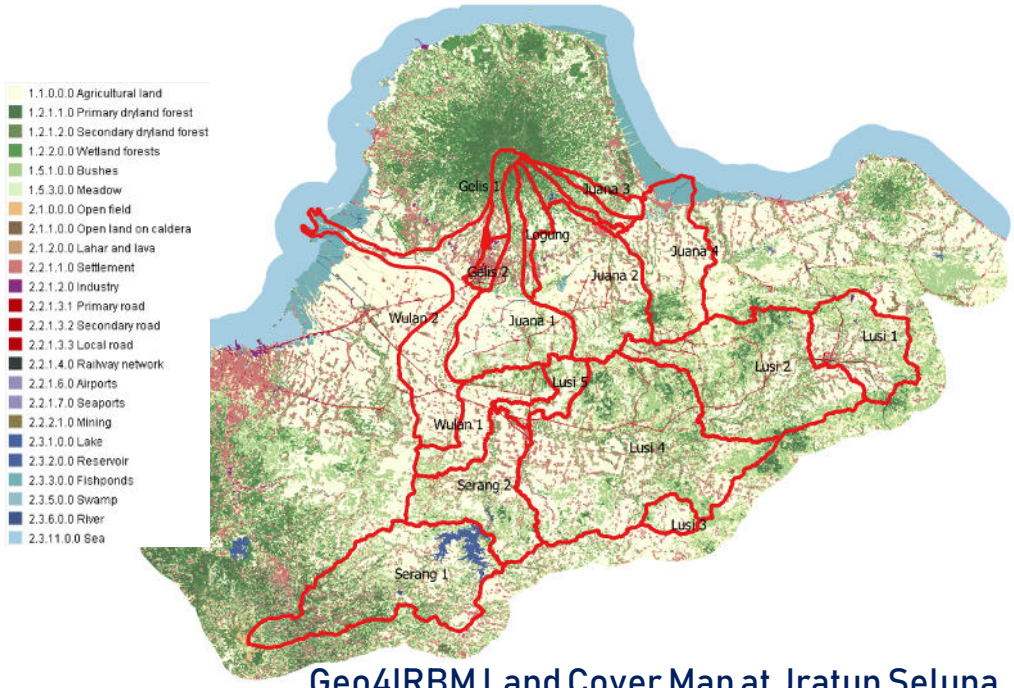
Enhanced Level of Flood Protection



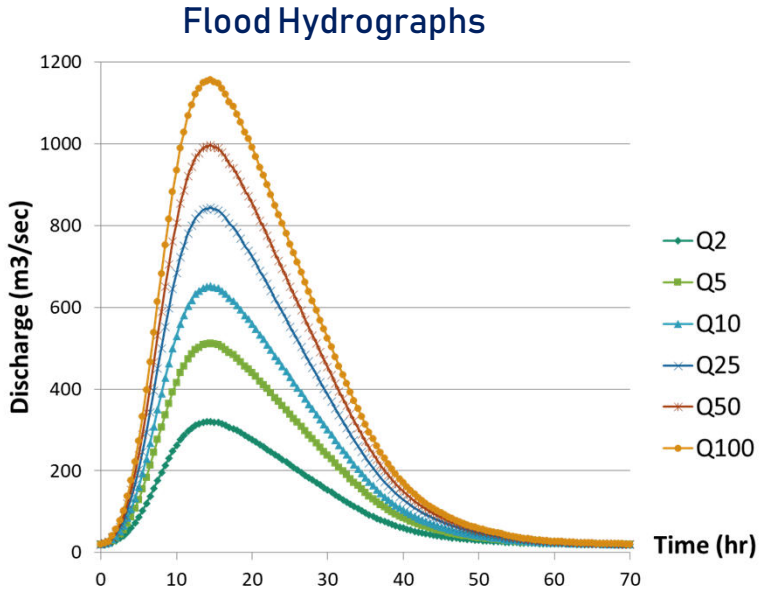
Schematic Process of FRM Sub-Projects



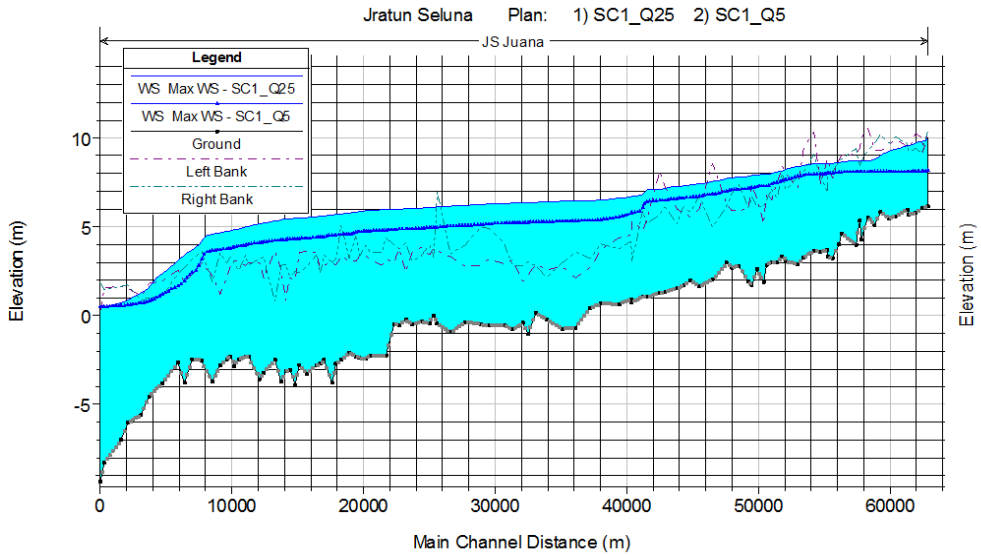
Application of Geo4IRBM Land Cover Map: Evaluation of surface roughness (Manning's n)



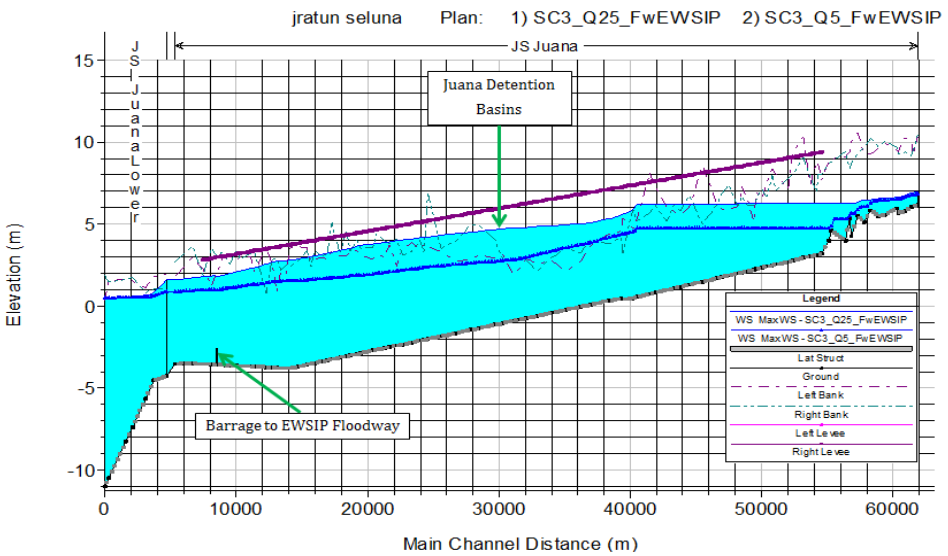
Geo4IRBM Land Cover Map at Jratun Seluna with Boundary of Seluna Sub-Basins



1D Hydraulic Model EWSIP Product



Juana River Long Profile Scenario 1



Juana River Long Profile Scenario 3

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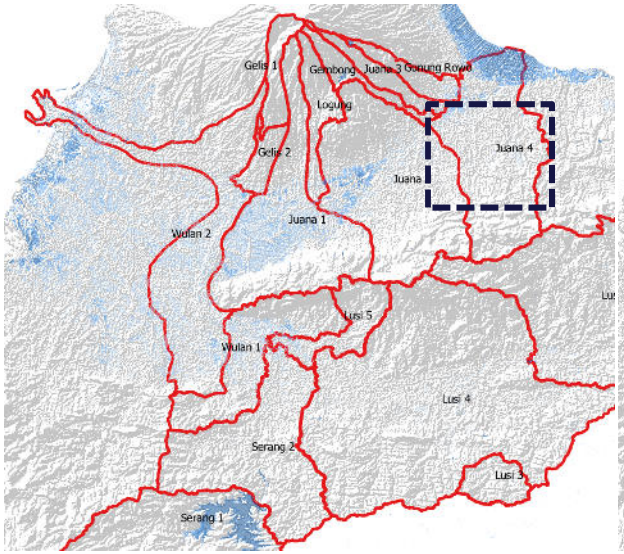
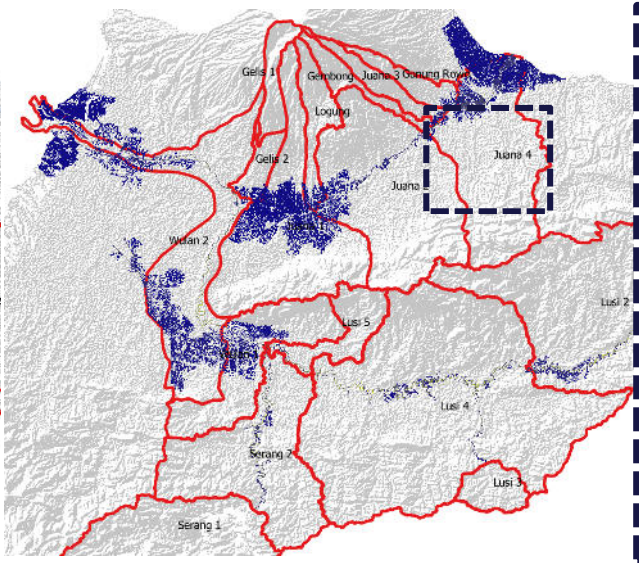
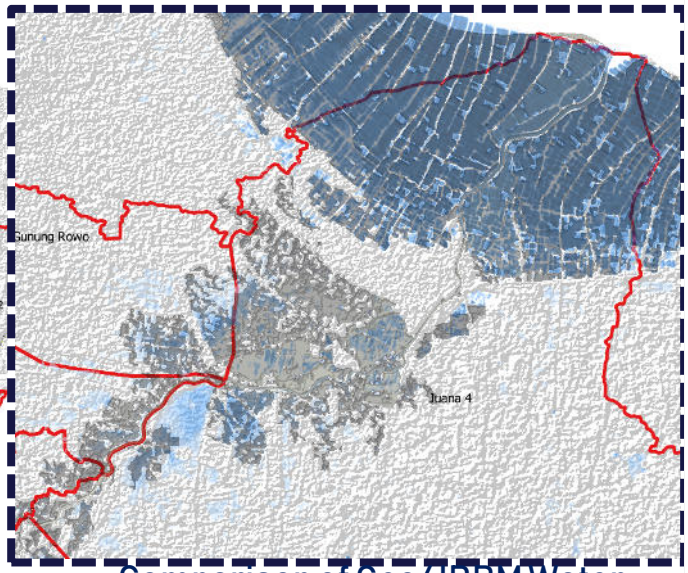
Application of Geo4IRBM Water Surface Map-Validation / Evaluation of Water Extent in 2D hydraulics



Geo4IRBM Water Surface Map

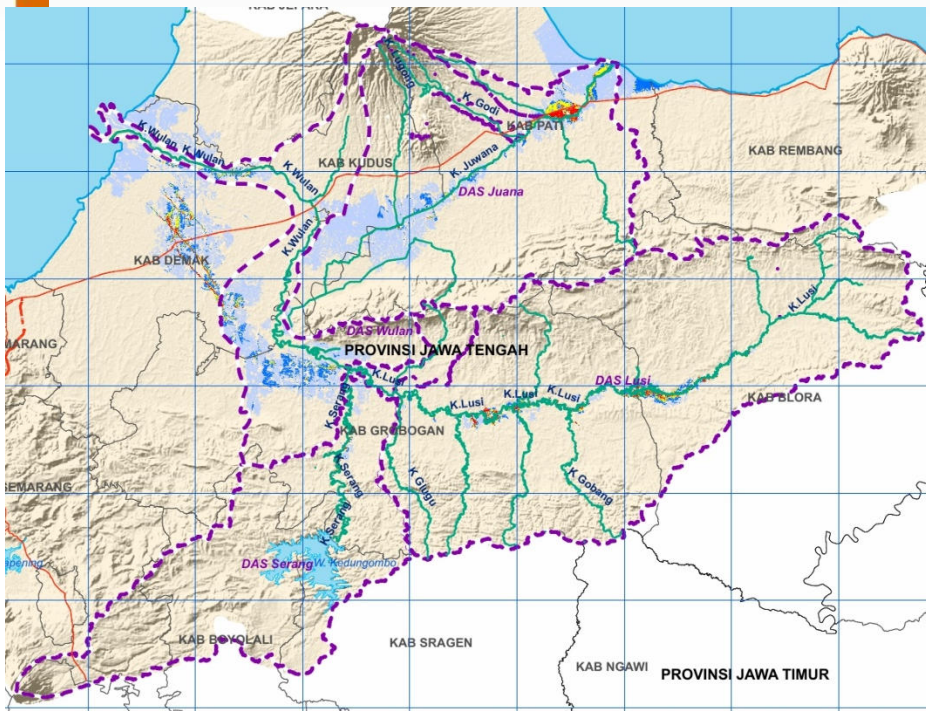


2D Flood Model EWSIP (Q25)

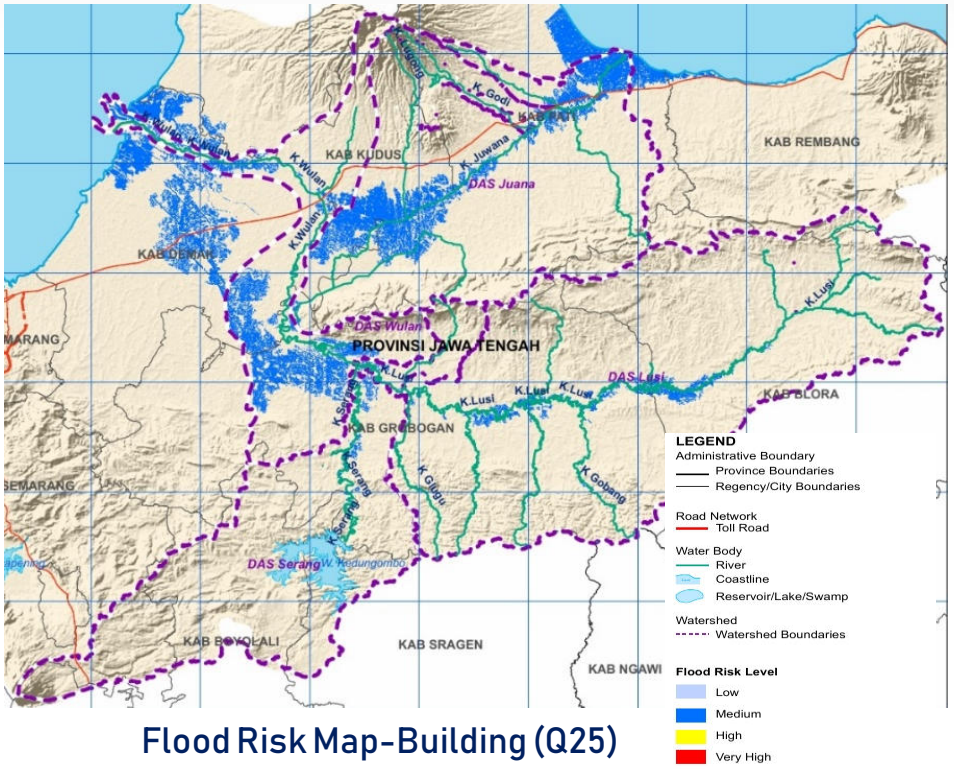


Comparison of Geo4IRBM Water Surface Map and 2D Flood Model EWSIP (Q25)

2D Hydraulic Model EWSIP Product



Flood Hazard Map (Q25)



Flood Risk Map-Building (Q25)

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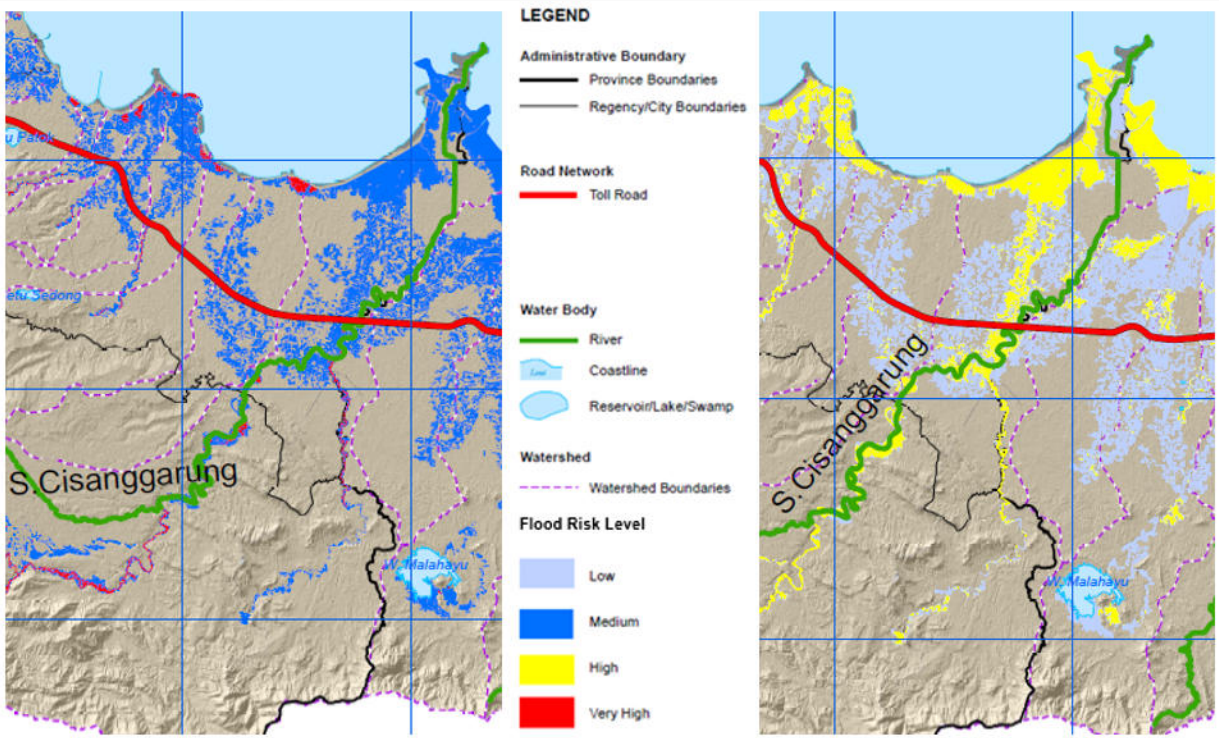
Flood Risk Maps: People, Buildings and Agriculture Areas



a. Agriculture

b. Building/People

Flood risk maps for Cisanggarung River Basin

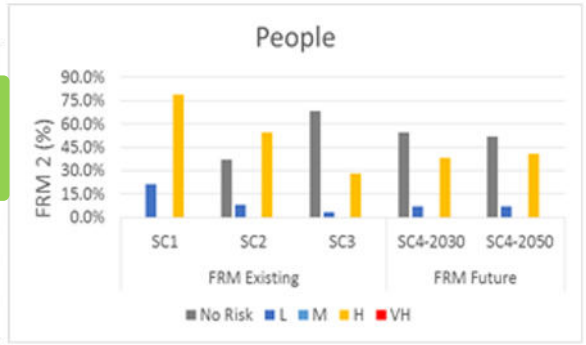
Improvements in level of flood protection by EWSIP

FRM 1: Cimanuk FRM subprojects

	Existing			Future	
	SC1	SC2	SC3	SC4-2030	SC4-2050
No Risk	-	37.1%	68.6%	54.6%	52.1%
L	21.2%	8.4%	3.3%	7.1%	7.2%
M	-	-	-	-	-
H	78.8%	54.5%	28.1%	38.3%	40.7%
VH	-	-	-	-	-

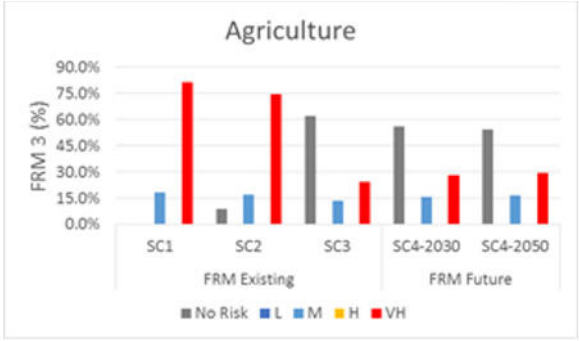
FRM 2: Cimanuk FRM subprojects

	Existing			Future	
	SC1	SC2	SC3	SC4-2030	SC4-2050
No Risk	0.0%	37.1%	68.6%	54.6%	52.1%
L	21.2%	8.4%	3.4%	7.1%	7.2%
M					
H	78.8%	54.5%	28.1%	38.3%	40.7%
VH	-	-	-	-	-

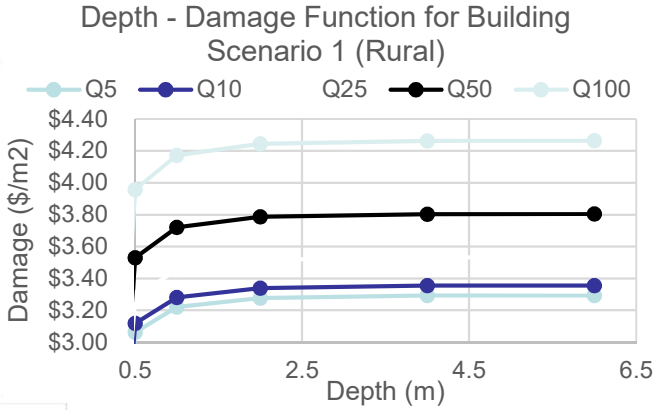


FRM 3: Cimanuk FRM subprojects

	Existing			Future	
	SC1	SC2	SC3	SC4-2030	SC4-2050
No Risk	0.0%	8.8%	61.8%	56.2%	54.2%
L					
M	18.5%	16.8%	13.7%	15.7%	16.4%
H					
VH	81.5%	74.4%	24.5%	28.1%	29.4%



SC1: Existing
SC2: Proposed by BBWS
SC3: Enhancement by EWSIP
SC4: Impacts of Climate change



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