Urban Climate Change

Living In the Edge

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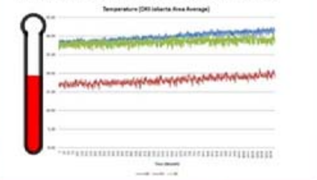
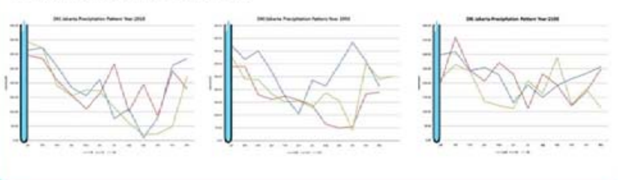
Temperature Projection In Jakarta City

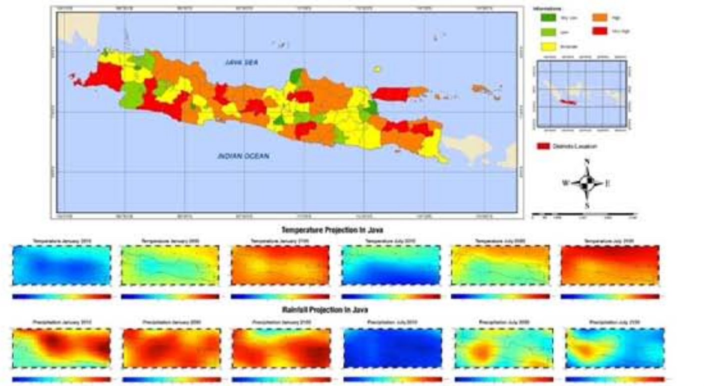


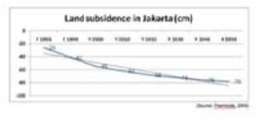
Rain Fall Projection In Jakarta City

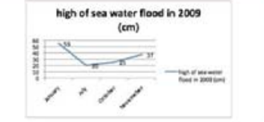


Sea Level Rise Projection In Jakarta City

Climate change vulnerability mapping in Java (particularly on water availability issue)

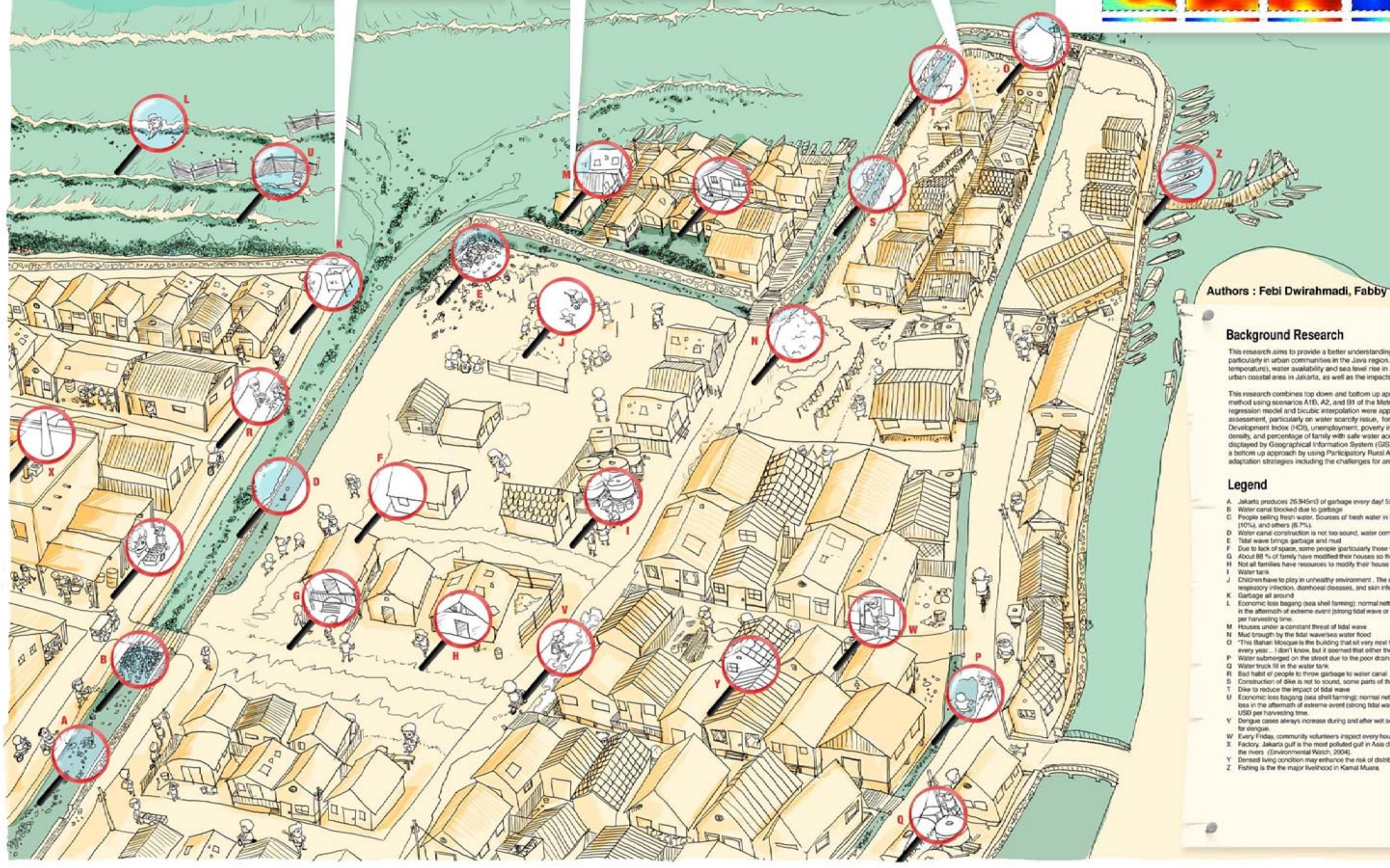






Area Loss Projection (In Km²)

Tahun	DKI Jakarta	Jawa
2010	18,7	40
2025	30,4	86,3
2050	54,5	111
2100	68,4	136,8



Background Research

This research aims to provide a better understanding about climate change risks and adaptation in urban areas in Indonesia, particularly in urban communities in the Java region. This research projects changes in climate variables (rainfall, temperature), water availability and sea level rise in Java Island and Jakarta; and identifies the climate related hazards in urban coastal area in Jakarta, as well as the impacts, the local adaptation and its challenges.

This research combines top down and bottom up approaches. A top down approach represented by the climate modelling method using scenarios A1B, A2, and B1 of the Metrological Research Institute (MRI). Statistical downscalling with non linier regression model and bicubic interpolation were applied as the base for data accuracy. Climate change vulnerability assesement, particularly on water scarcity issue, for Java region was done by combining the factors like Human Development Index (HDI), unemployment, poverty index, number of people working on agriculture sectors, population density, and percentage of family with safe water access. The result of the climate change vulnerability assessment was displayed by Geographical Information System (GIS) map. Aside from the top down approach, this research also conducted a bottom up approach by using Participatory Rural Appraisal (PRA) tools to observe the current climate risks and present adaptation strategies including the challenges for an urban coastal community, Kelurahan Kamal Muara.

Legend

A Jakarta produces 26.945m3 of garbage every day! 55% organic and 45% anorganic of which 13.25% plastic (BPLHD, 2010)
B Water canal blocked due to garbage
C People selling fresh water. Sources of fresh water in Kamal Muara community are buy water (80%), water tap (3.3%), shallow well (10%), and others (6.7%).
D Water canal construction is not too sound, water comes out from the canal
E Tidal wave brings garbage and mud
F Due to lack of space, some people (particularly those who are the poorest) have to built their house outside the dike above the sea water
G About 88 % of family have modified their houses so that they can limit the impact of sea water flood
H Not all families have resources to modify their house (12% still not modified)
I Water tank
J Children have to play in unhealthy environment . The main diseases in Kamal Muara are sanitation based diseases such as acute respiratory infection, diarrhoeal diseases, and skin infection.
K Garbage all around
L Economic loss bagang (sea shell farming): normal nett income à 650-700 US $ per 4 month (harvesting 3 times in a year). Economic loss in the aftermath of extreme event (strong tidal wave or storm) which exacerbated by garbage from the small river will be about 600 USD per harvesting time.
M Houses under a constant threat of tidal wave
N Mud brougth by the tidal wave/sea water flood
O "This Bahari Mosque is the building that sit very next to the sea, and it is seemed that the Mosque is becoming closer to the sea border every year... I don't know, but it seemed that either the land is sinking or the sea level is rising"
P Water submerged on the street due to the poor drainage
Q Water truck fill in the water tank
R Bad habit of people to throw garbage to water canal
S Construction of dike is not to sound, some parts of the dike has been broken, therefore, sea water still comes in
T Dike to reduce the impact of tidal wave
U Economic loss bagang (sea shell farming): normal nett income à 650-700 US $ per 4 month (harvesting 3 times in a year). Economic loss in the aftermath of extreme event (strong tidal wave or storm) which exacerbated by garbage from the small river will be about 600 USD per harvesting time.
V Dengue cases always increase during and after wet season. Based on dengue data from 2005-2007, February-May is the peak month for dengue.
W Every Friday, community volunteers inspect every house to check mosquito larva and ask house owner to clean their water container.
X Factory. Jakarta gulf is the most polluted gulf in Asia due to the contamination of heavy metal from factories that dump their waste into the rivers (Environmental Watch, 2004).
Y Densed living condition may enhance the risk of distribution of various infectious diseases.
Z Fishing is the the major livelihood in Kamal Muara.

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