





<http://www.nps.gov/sama/parknews/climate-change-lecture-series-2013.htm>



<http://www.businessinsider.com/islands-threatened-by-climate-change-2012-10?op=1>

CLIMATE RISK ANALYSIS ON THE FOOD SECURITY IN SAGUDAY, QUIRINO PROVINCE

Dr. Jose Santos R. Carandang VI and Glenn S. Banaguas

AKI FUNDED PROJECT





http://en.wikipedia.org/wiki/File:Ph_locator_quirino_saguday.png



Coordinates: [16°31'N 121°36'E](#)

<u>Region</u>	<u>Cagayan Valley</u> (Region II)
<u>Province</u>	<u>Quirino</u>
Established	June 21, 1959
<u>Barangays</u>	9
Area	
• Total	55.50 km ² (21.43 sq mi)
Population (2010)	
• Total	14,596
• Density	260/km ² (680/sq mi)
<u>Time zone</u>	<u>PST (UTC+8)</u>
<u>ZIP code</u>	3402
<u>Dialing code</u>	78
<u>Income class</u>	5th class

**WATERSHED
AREA**

**5TH
CLASS
LGU**

**CLIMATE
CHANGE**

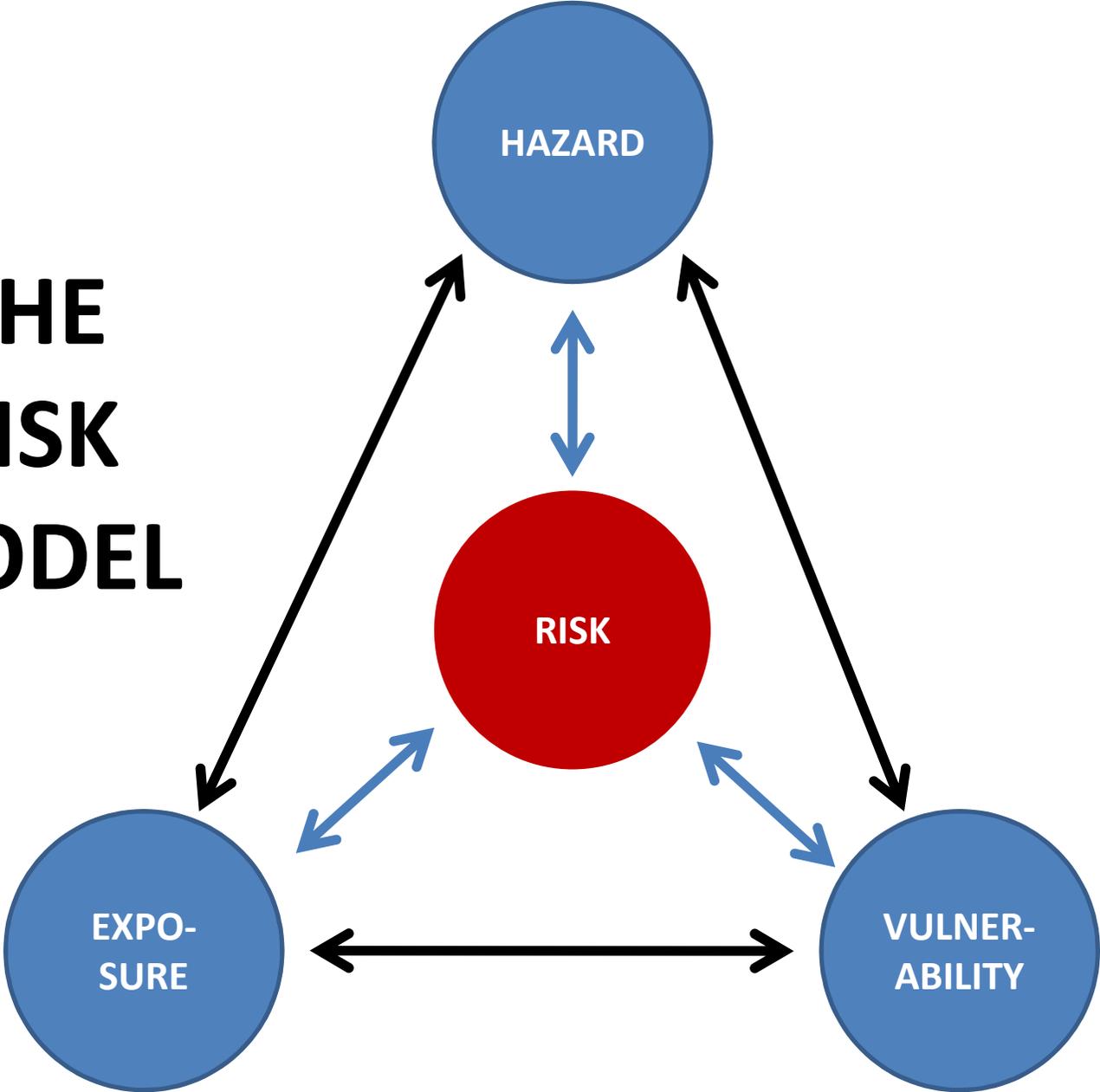
**VULNERABILITY
OF SAGUDAY**

**PROBLEM OF
FOOD
SECURITY**

**AGRICUL-
TURAL**

**TYPHOON
PRONE**

THE RISK MODEL



DATA SOURCE

UNITED NATIONS
INTERNATIONAL
STRATEGY FOR
DISASTER REDUCTION

INSTITUTE FOR
SOCIAL ORDER,
ATENEO DE MANILA

MANILA
OBSERVATORY,
ATENEO DE MANILA

MUNICIPALITY OF
SAGUDAY

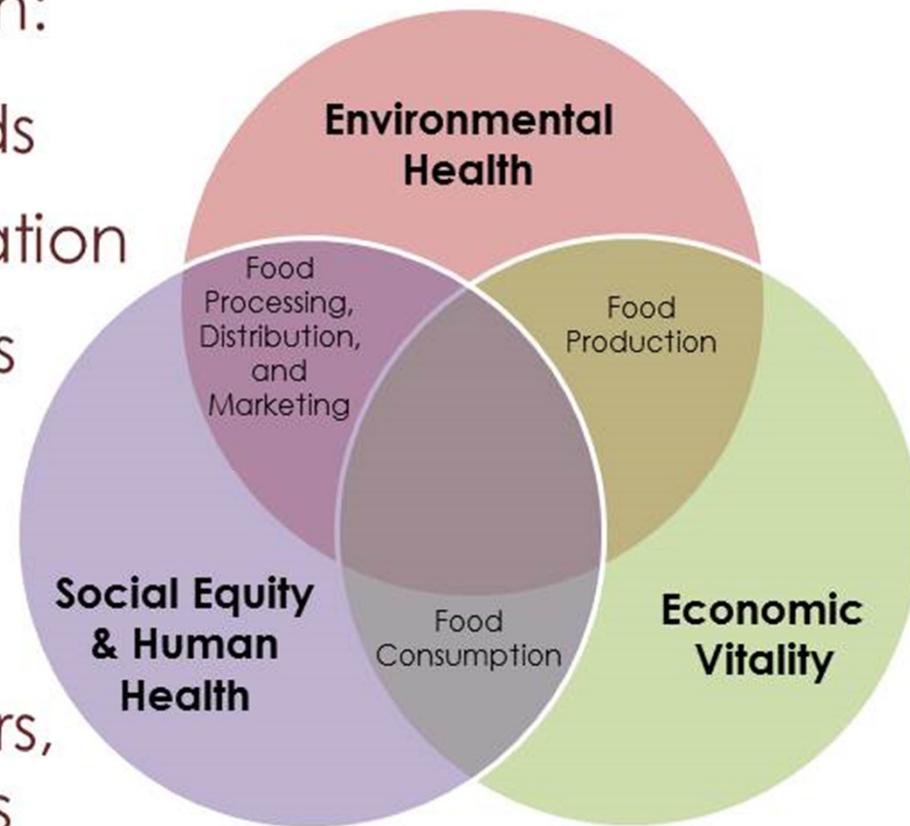
METHOD USED	RESULTS
HAZARD STUDIES (Monte Carlo Method)	there will be an increase in tropical cyclones that would place the nine (9) barangays of the Municipality of Saguday at a vulnerable situation
POPULATION VULNERABILITY (Simulations Exercise)	all the residents of Saguday would be exposed to hazards of tropical cyclone, drought, and flood
HUMAN DEVELOPMENT INDEX (Simulations Exercise)	simulated Human Development Index value was 0.77 indicates that in general, Saguday seems to have enough resources and capabilities to withstand a natural calamity
DETERMINATION OF CALAMITY FUND ALLOCATION	in 2009, the Comprehensive Land Use Plan (CLUP) of the Province of Quirino registered a total collection of PhP 31,575,441.91 for the Municipality of Saguday; applying the 1991 Local Government Code stipulation of utilizing 5% of the total revenue for calamity fund translates to PhP 1,577,782 or less than PhP 19.00 per capita allotment for worst-case scenarios

METHOD USED	RESULTS
EXPOSURE MODELLING EXERCISE	the intensity of exposure to hazards by the different barangays follows this sequence: La Paz = Rizal = Magsaysay > Salvacion = Santo Tomas = Dibul > Cardenas = Gamis = Tres Reyes
VULNERABILITY SIMULATION EXERCISE	Tres Reyes is the most vulnerable to hazards because it has the lowest capacity amongst the 9 barangays to respond to the projected hazards; the sequence of vulnerability of the 9 barangays was as follows: Tres Reyes > La Paz > Magsaysay = Santo Tomas > Salvacion > Rizal = Gamis = Dibul = Cardenas.
RISK MODEL (The outcome of the integration of hazard, exposure and vulnerability models)	data shows that although Rizal, Magsaysay and La Paz have the largest population among the barangays of Saguday, they also have the least capacity to respond to climate hazards; These combined put them at a higher risk than the other barangays.

Sustainable Food Systems

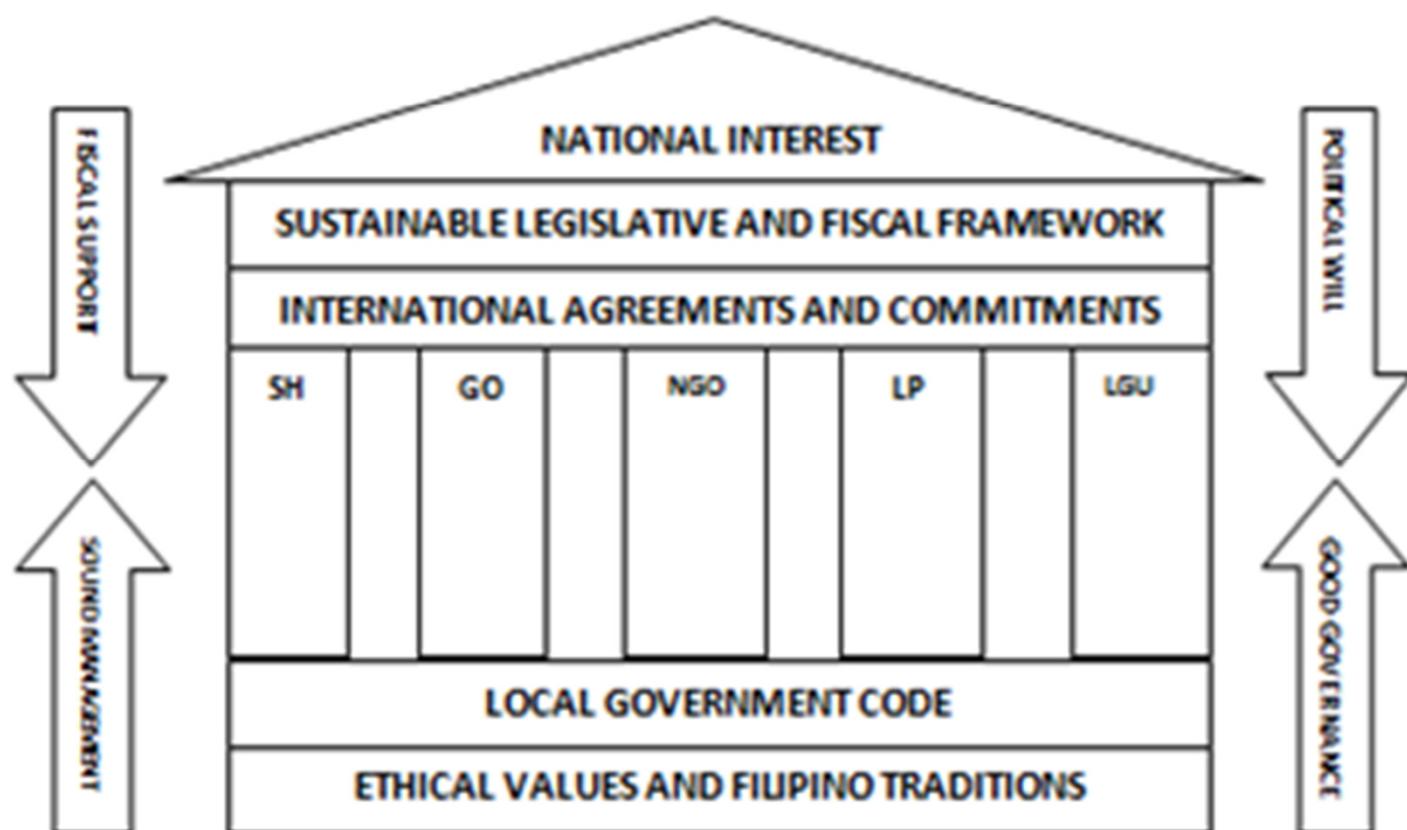
A Healthy, Sustainable Food System focuses on:

- Local, seasonal foods
- Health of the population
- Building communities
- Local economic development
- Supporting local producers, processors, distributors & retailers



PROPOSED FRAMEWORK FOR ACHIEVING FOOD SECURITY

DEVELOPMENTAL FRAMEWORK TOWARDS ACHIEVING FOOD SECURITY



Legend: SH (stake holders); GO (government organizations); NGO (non-governmental organizations); LP (local populations); and LGU (local government units).

POLICY ISSUES	RECOMMENDATIONS TO HELP ACHIEVE FOOD SECURITY
Lack of Infrastructure	Improve flood control system; construct food storage facilities; install weather monitoring facilities.
Capacity Building	Improve environmental education; build staff capacity and infrastructure to implement flood warning system; build capacity in weather forecasting; install hydro-climatic network monitoring; strengthen commodity value chains and find new markets; build knowledge and capacity in adaptation to climate change impacts.
Policy Development and Implementation	Design and implement zoning regulations and building codes; inter-sectoral allocation; facilitate access to credit; water conservation and demand management (including metering and price structure); compensation for flood damages; develop coastal resource management plans at the barangay levels.
Adaptation of Best Practices	Incorporate risk assessment and mitigation information system into micro-watershed management plans; implement rainwater harvesting.

http://agriwaterpedia.info/wiki/Portal:Food_Security



**FOOD
SECURITY**