

ADAPTATION OF FISHERMEN IN THE PHILIPPINES TO CLIMATE CHANGE

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Climate Variability Predictions

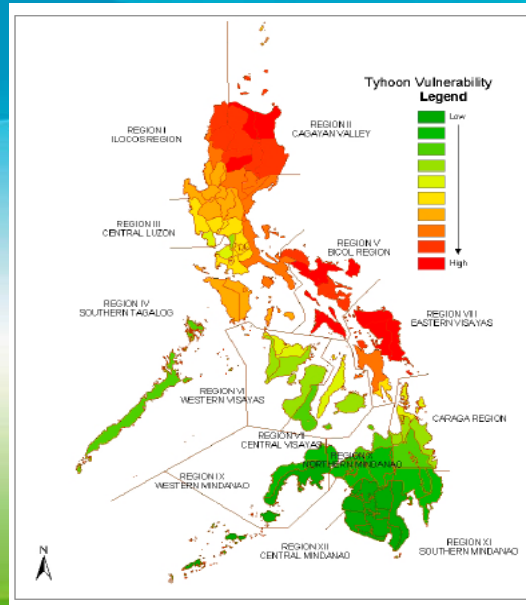
(IPCC TAR, 2001; IPCC FAR, 2007)

- More intense extreme hydrologic events
- More frequent events
- More extreme events
- Typhoons
- Floods
- Droughts
- More intense rainfall



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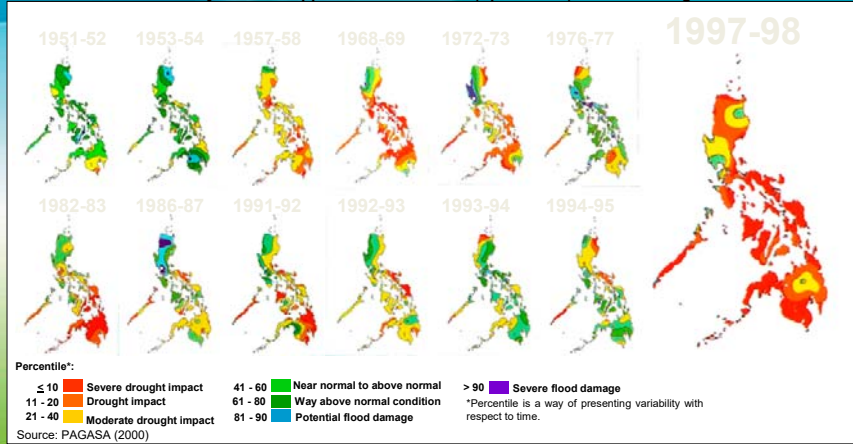
Vulnerability to typhoons of different provinces of the Philippines



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El Niño in the Philippines

Extreme Climate Variability in the Philippines: Twelve-month (April-March) Rainfall During El Niño



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Responses to and Managing Risks due to Climate Change

- Adaptation
 - Mitigation
 - Coping
 - Avoiding
- Technology/ improved practices
 - Farm management practices
 - Institutional measures (e.g. agri-insurance, calamity fund, etc.)
 - Others

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Project Rationale



Climate change greatly affects fishery and aquaculture, which are most vulnerable to natural risks (i.e. vagaries of climate and weather, incidence of pests and diseases).



To address these problems, some risk management schemes have been introduced:

- price stabilization measures
- typhoons and drought relief
- crop insurance

Remarks:

- Schemes becoming more expensive operationally.
- Do not lessen the vulnerability of smallholders.

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Project Rationale ...



As such, the government's agricultural credit arm, QUEDANCOR's operations are greatly affected by the impacts of climate change.

Thus, an assessment of risks due to climate change may provide insights on how loans of smallholders can be restructured so as not to lose the essence of credit assistance.



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Objective

- **To assess the adaptation of fishing communities to climate change and come up with appropriate recommendations and measures to mitigate the adverse impacts of natural calamities on their welfare.**



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Specific Objectives:

- **To estimate the fishers' production losses due to climate change ;**
- **To document the adaptation practices of fishers, communities and institutions to climate change;**
- **To identify area-specific and appropriate farming practices that are more resistant or less vulnerable to climate change ;**



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Specific Objectives ...

- **To review and recommend effective and appropriate coping strategies and mitigating measures to minimize risk and losses in fisheries production;**
- **To formulate appropriate policies and strategies to cope with or manage risks due to climate change .**



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Methodology

Data Gathering and Analysis

- Primary data collection via socio-economic survey
- Secondary data collection
- Review of literature
- Key informant interviews



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Adaptation, Mitigation & Coping Strategies



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COPING MECHANISMS AND ADAPTIVE STRATEGIES

- Diversifying income sources
- Building up on stocks and inventory
- Seeking institutional support
- Institutional preparedness



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Assessing and Managing Risks due to Natural Calamities



Advance reliable information allows farmers to decide what management practices may be used to adapt to impending calamity.

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STRATEGIES TO REDUCE VULNERABILITY

- **Reducing consumption and social obligations -81% cut food intake**

- 48% add dried fish to their daily menu
- consumption expenditures reduce by 6-39%

- **Livestock/poultry raising**

- raise > 1 type of animal

- **Destocking of animals (26%)**

- **Migration-21% resort to seasonal out-migration**

- **Withdrawing from inventories**

- **Extracting from common property resources-31%**

- **Community cooperation and collective action**

- **Other strategies: non-payment of dues, drawing upon social relationships, borrowing, postponement of marriage, leasing out farms, harvesting pre-mature crops before floods come**

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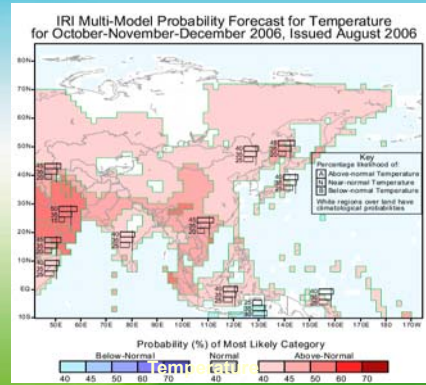
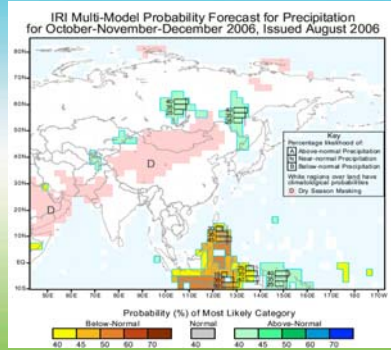


Farmer-borrowers get much of advance information on possible occurrence of natural calamities (El Niño, La Niña, typhoons, etc.) primarily from the media, local radio, agricultural extension workers, fellow-farmers who have access to advanced information from various sources.

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Early Warning System

IRI Regional Climate Forecast

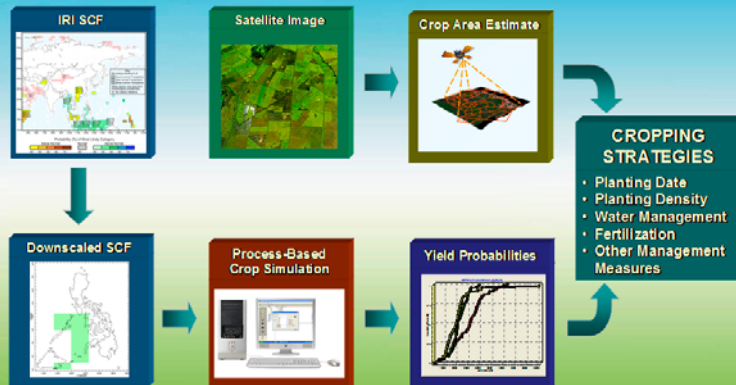


Precipitation

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Crop Forecasting System

Knowledge-based crop forecasting system framework



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Managing Risks ...

- **Survey showed that Quedancor's borrowers employed a range of varying strategies and measures:**
 - *seeking employment elsewhere to augment the family income;*



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coming up with collective community action.



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Farm Management Practices

- Farm sanitation to reduce the sources of disease infection or incidence of pests;



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Practices adopted to safeguard against or minimize impacts before a natural calamity occurs - e.g. drainage construction, and cleaning of farm.

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Farm Management Practices

- Seaweed growers in Zamboanga del Norte harvest the crop as soon as the signs of pest and diseases occur.



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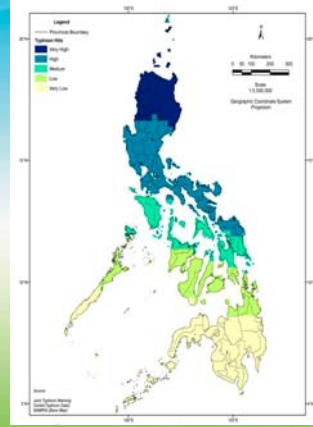
- Tilapia growers in Batangas and bangus farmers in Pangasinan harvest the stock before an announced typhoon occurs.



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Typhoons in the Philippines

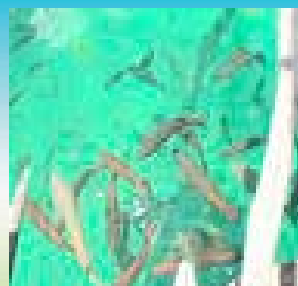
- **Average of 20 typhoons annually occur**
 - Accompanied by strong winds, intense rainfall,
 - Flooding occurs



Typhoon incidence map of the Philippines
(Source: Manila Observatory)

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Structural Measures



- Raisers of grouper in Surigao del Norte's usually transfer the cages to deeper water during periods of continuous rain in order to prevent abrupt changes in water temperature and salinity.

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Structural Measures



- Tilapia growers in Batangas select sites where the terrain of the surrounding shore areas weaken or deflect strong winds and waves.

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After typhoons and floods, the usual practices of the farmers are to restore what is left of the crops, remove the damaged crops ...

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...or totally replant



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Institutional Measures

- Improved seasonal climate forecasting of the occurrence of natural calamities as well as effective dissemination of forecasts for preparedness.
- Improving the early warning system by concerned government agencies – e.g. PAGASA, DA-RFUs, BSWM, etc.



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Community zonation



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<u>AVERAGE LOSSES DUE TO NATURAL CALAMITIES</u>					
REGION	PROVINCE	COMMODITY	NATURAL RISK	LOSS (%)	AVERAGE LOSS (PhP/ha)
Region I	Pangasinan	Milkfish	Typhoon	87.8	13960.2
Region IV	Batangas	Tilapia	Typhoon	84.39	77039.63
Region IX	Zamboanga del Norte	Seaweeds	Pests & diseases	75	68,700
CARAG A	Surigao del Norte	Grouper	Pests & diseases	64.95	179911.5
			Typhoon	72.68	201,323.60
			ENSO	6.96	19,279.20


*per head



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Institutional Measures

- Provision of a standby **Calamity Support Bridge Fund** to assist farmers and fisher folks in cases of natural calamities.



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QUEDANCOR CALAMITY BRIDGE FUND (QCBF)

Rationale:

- ⌘ **Farmer-borrowers highly vulnerable to natural calamities be given additional support to facilitate recovery from damages.**
- ⌘ **Co-variability of risks reduces efficacy of existing measures in handling uncertainties in crop production, particularly in ensuring secured finances to continue crop production activities.**

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Rationale cont'd.....

- ⌘ **Agricultural/crop insurance – most common tool in strengthening financial security but several studies assessed that administration cost is generally too high relative to benefits receive farmers and lending institutions like the banks.**
- ⌘ **Insurance alone cannot be a source of financing to enable farmers to continue production activities and recoup losses.**

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Issues and Challenges

1. Updating of risks and associated losses

- *as new data and information are available*
- *new approaches and procedures are developed*
- *risk is location-specific, commodity-specific, and time-dependent*



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Issues and Challenges

2. Developing strategy for information, education and communication of assessment and management of risk.

- *SRT training module on understanding and assessing risks.*
- *module on adaptations, coping and mitigating measures.*



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- *Quedancor to work with partners in agricultural development (e.g. DA, LGUs) to enhance capacity of smallholders to respond to and manage risks.*
- *Use of radio, television, and local communication networks, SMS, etc.*
- *Quedancor to provide regular advisories and recommendations **to cope with natural calamities.***