

A woman wearing a bright yellow t-shirt and dark pants is leaning over a long wooden rack filled with fish. She appears to be in the process of drying or sorting the fish. The setting is a semi-enclosed structure with corrugated metal walls and a concrete floor. In the background, another person is visible, and there are various items and equipment scattered around, suggesting a small-scale fish processing or drying facility.

***Adapting to Climate Change:
The Case of Women-Fish
Driers of
Brgy Bislig, Tanauan***

MARIETA BANEZ SUMAGAYSAY
UNIVERSITY OF THE PHILIPPINES IN THE VISAYAS

Rationale



- Climate change impacts compound the effects of declining fish production that have long been experienced as a result of unsustainable fishery practices such as overfishing.
- Fishery habitats are sensitive to climate change such as rise in sea water temperatures. Hence, the reduction in fish catch despite greater fishing efforts is inevitable.

Rationale



- **These have sequential effects on the lives and livelihood of women fish driers who add value to the fresh fish catch.**
- **New challenges for people, particularly the women, who depend on coastal resources for a living arise.**

General Objective



This case study looks into the perceptions and adaptive behaviors of women-fish driers at a time when their primary livelihoods and their economic well-being are threatened by the impacts of climate change.

Specific Objectives



- Determine the level of awareness and understanding of women-fish driers on the climate change phenomenon;
- Determine the economic impact of climate change on the women-fish driers, and the corresponding adaptation strategies used;
- Identify measures to cushion the ill effects of climate change on the economic-well being of women-fish driers.

The Research Locale

Bislig is one of the 6 coastal villages of Tanauan, a 2nd class municipality.

Bound by the San Pedro Bay in the East.

Mostly migrant families; are found in Sitio Bunga.



Methodology



- **Case study -- 10 women fish driers**
- **Ocular inspection of the area**
- **Focus Group Discussion**
- **Key Informant Interview (male fishers)**

Are women fish driers aware of climate change?



7/10 heard and knows
something (correct) about it

2/10 heard but have no idea about it

1/10 never heard

What have they heard about climate change?



- **Change in the weather that is affecting our business**
- **The weather has gone wrong – it rains when it is supposed to be summer; it is sunny when it is supposed to be rainy months**
- **Sudden changes in the weather which the old people say is a bad omen**

What have they heard about climate change?



- Last year, June was sunny. Some years back, June was a rainy month
- March, April and May last year were rainy months. The other year, these months were sunny. I don't know this year.
- It is about unpredictable weather conditions.

What do you think are its causes?



- **4/10 - - Pollution due to**
 - ✦ **burning of garbage**
 - ✦ **brought by smoke belchers**
 - ✦ **Plastics and rubber that are burned**
- **6/10 - - do not know; no idea**

What are the indicators of climate change?



- It is so hot when it is sunny
- No pronounced rainy or dry seasons
- Continuous rains, longer than normal duration
- Sudden pouring of heavy rains even if the sun has been shining so hot
- Abnormal ground temperatures

Climate change is not gender-neutral



- **In many of the contexts of climate change, women are more vulnerable than men:**
(UN Women Watch: www.un.org/womenwatch)
 - Highly dependent on natural resources for their livelihood and for household needs
 - In-charge of ensuring enough food for the family on the table, whatever it takes
 - Reproductive roles limit their mobility to look for alternative livelihood
 - When there are cash shortages, women are expected to find the ways to make both ends meet
 - May face social, economic and political barriers that may limit their coping and adaptive capacity

What changes did climate change have on the woman fish drier?



- Number of hours worked on fish drying
 - *When the weather is so unpredictable*
 - ✦ From -- half day
 - ✦ To -- whole day
 - *When the weather is hot*
 - ✦ From -- whole day
 - ✦ To -- half day
 - *When rain is prolonged*
 - ✦ From -- half day or whole day
 - ✦ To -- none

What changes did climate change have on the woman fish drier?



- Specific work/economic activities in a day
 - *When the weather is so unpredictable*
 - ✦ From -- fish drying + laundry and clean the house
 - ✦ To -- fish drying only
 - *When the weather is hot*
 - ✦ From -- fish drying + laundry and clean the house
 - ✦ To -- fish drying + laundry and clean the house + watch TV and attend meetings
 - *When rain is prolonged*
 - ✦ From -- fish drying + laundry and clean the house
 - ✦ To -- none

What changes did climate change have on the woman fish drier?



- Motivation to work

- *When is so unpredictable*

- ✦ From -- high even if fish drying is tiresome
 - ✦ To -- low because it seems work is never done or one has no idea when work will be done

- *When weather is so hot*

- ✦ From -- high even if fish drying is tiresome
 - ✦ To -- higher because more fish is dried per unit of time

- *When rain is prolonged*

- ✦ From -- high even if fish drying is tiresome
 - ✦ To -- very low since losses are incurred

What changes did climate change have on the woman fish drier?



- Roles at home

- *When weather is so unpredictable*

- ✦ From -- have time to baby-sit
 - ✦ To -- baby-sitting time is converted to fish-drying time

- *When weather is hot*

- ✦ From -- have time to baby sit
 - ✦ To -- longer time to baby sit + do other household chores + attend meetings

- *When rain is prolonged*

- ✦ From -- have time to baby sit
 - ✦ To -- longer time to baby sit + do other household chores

What changes did climate change have on the woman fish drier?



- Roles in the workplace

- *When weather is so unpredictable*

- ✦ From -- spreads the fish to dry on a flat surface
 - ✦ To -- always looking after the fish that is being dried, ready to cover it should rains come so suddenly

- *When weather is hot*

- ✦ From -- spreads the fish to dry on a flat surface
 - ✦ To -- in a short while, collects dried fish, packs and places them in containers; fish peddling

- *When rain is prolonged*

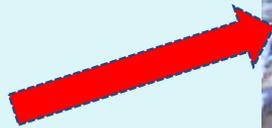
- ✦ From -- none
 - ✦ To -- none



Kapin



Woman carries
kapin to the
drying area



Fish drying

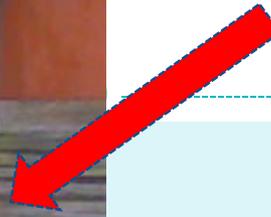


Collecting the
dried fish





Sorting the dried fish, *bulad*



The dried fish in the *alat*
(big rattan baskets)



What changes did climate change have on the woman fish drier?



- **Leisure hours**

- *When weather is so unpredictable*

- ✦ From -- long hours; many uses

- ✦ To -- lesser/shorter hours since some leisure hours are converted to work hours (looking after fish being dried under the sun)

- *When weather is hot*

- ✦ From -- long hours; many uses

- ✦ To -- longer hours; more uses

- *When rain is prolonged*

- ✦ From -- long hours; many uses

- ✦ To -- longer hours; more uses

What changes did climate change have on the woman fish drier?



- **Specific leisure activities**

- ✦ From -- drink wine, watch TV, go to friend's house
- ✦ To -- sit down, drink local coconut wine, watch TV and watch signs of forthcoming rains

- **Woman's health**

- ✦ From -- does not get sick easily
- ✦ To -- easily catches cough and colds; sometimes fever and flu
- easily gets migraine and headaches

- **Health of family members**

- From -- does not get sick easily
- To -- easily catches cough and colds

What changes did climate change have on the woman's livelihood?

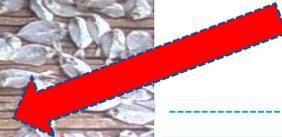


- Lesser volume of fish for drying
(number of *banyera*, where 1 *banyera* = 45k fish)

<u>type of fish</u>	<u>from</u>	<u>to</u>
Sapsap	15 - 20	7 - 10
Tamban	5 - 7	3 - 5
Bolinao	5 - 7	3 - 5
Hasahasa	3 - 5	2 - 4
Malatindok (seldom)	3 - 5	2 - 4
Galonggong (seldom)	2 - 4	1 - 2



Bulad nga sapsap



Bulad nga tamban



Reasons for reduced volume of fish for drying



- lesser fish catch when weather is too hot or when rain is prolonged
- women not willing to take risks of losing should fish spoil due to absence of the sun for drying
- lack of capital to buy more fish
- higher price of fish per *banyera*

What changes did climate change have on the woman's livelihood?



- Lower volume of production per *banyera*
 - *Normal conditions*
 - ✦ 1 *banyera* = 45 k fresh fish PRODUCES 25k - 35k dried fish
 - *With sudden changes in climate*
 - ✦ 1 *banyera* = 45 k fresh fish PRODUCES 20k - 30k dried fish

What changes did climate change have on the woman's livelihood?

- Higher cost of production

- Increase in the price of fish per *banyera* due to reduced fish catch

✦ Sapsap	from	PhP 700 (US\$16.30)	
	to	PhP 1200	(US\$27.90)
✦ Tamban	from	PhP1200	(US\$27.90)
	to	PhP1500	(US\$34.88)
✦ Malatindok	from	PhP2000	(US\$46.51)
	to	PhP2500	(US\$58.13)
✦ Bolinao	from	PhP700	(US\$16.30)
	to	PhP1000	(US\$23.63)

Tamban
(white sardinella)

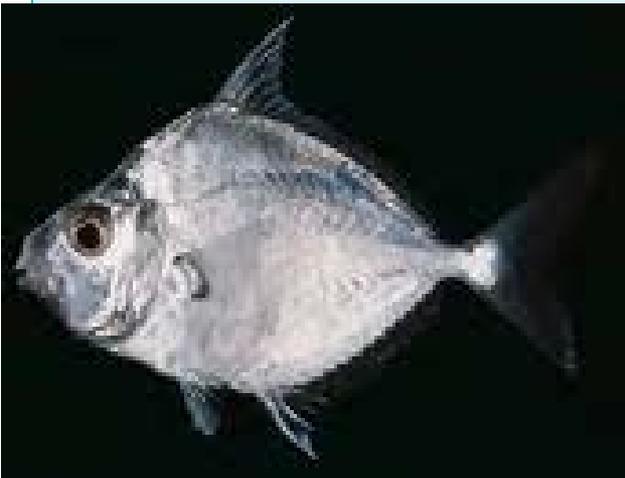


Hasahasa
(short-bodied mackerel)



Malatindok
(Japanese scad)

Galomggong
(round scad)



Sapsap
(slipmouth)



Bolinao
(anchovy)



What changes did climate change have on the woman's livelihood?

- Higher cost of production
 - Increase in the number of hours/days for fish drying, hence, an increase in labor cost
(when rain is prolonged and/or when weather is so unpredictable)

Labor cost = PhP15 to PhP20/*banyera*
(US\$0.35 to US\$0.46)

- ✦ From 1 and 1/2 days or 2 days
- ✦ To 5 – 7 days

What changes did climate change have on the woman's livelihood?



- Higher cost of production
 - Increase is variable cost
(when rain is prolonged and /or when weather is so unpredictable)
 - ✦ more salt needed, where 1 sack of salt/4 *banyera* = PhP200/sack (US\$4.65)
 - ✦ labor cost for washing fish = PhP15/*banyera* (US\$0.35)
 - ✦ labor cost for fish piling increases due to intermittent rains

What changes did climate change have on the woman's livelihood?



- **More debts to pay**
 - Increases with the increase in the frequency of spoilage of fish-in-process-of-drying
 - Increases with the increase in the price of fish, particularly with lower catch due to climate change
 - More informal debtors are resorted to by the women fish driers
 - Interest rate = 2% to 2.6% per month paid weekly

What changes did climate change have on the woman's livelihood?



- Reduced cash income for the woman, hence, lesser contribution to total family income

Reasons:

- Lesser fish to wash (*PhP15/banyera = US\$0.35*)
- Lesser fish to slice (*PhP80/banyera = US\$1.86*)
- Lesser volume of dried fish production per week
- Lesser profit per batch of dried fish produced

What changes did climate change have on the woman's livelihood?



- Reduced profit
 - Lower price of dried fish due to poorer quality
 - Lesser volume of dried fish sold
 - Shorter shelf life of dried fish
(from 1 month to 1 week)
 - More spoilage of fish-in-process-of-drying

How soon does fish-in-process spoil?

No. of days	Weather	State of the fish for drying
Day 1	Sunny	Fresh fish is bought, washed and piled for drying
Day 2	Starts to rain	Fish drying stops; fish may be left in the <i>banyera</i> ; more salt added
	No rains; without sun; windy	Fish is left to the wind to dry (not good quality dried fish is produced)
	With sun but suddenly rains heavily	Some of the fish may have dried a bit then covered with sheets before the rains fell, so it did not get wet Other fish are not covered, gets wet

Why do fish for drying spoil easily?

No. of days	Weather	State of the fish for drying
Day 3	Rains	Fish starts to spoil; can be sold as livestock feed
Day 4	Still raining	Some worms are seen in the fish-in-process; can't be sold; thrown to the sea or buried
Day 5	Still raining	Fish thrown to the sea or buried; no work for women
	Sunny	New capitalization needed for another batch of fish to be dried
	No rains; without sun	Women do not work, do not take risks of starting to dry another batch of fish

How much does a batch of dried fish cost?



- 1 batch per day = PhP20,525 to PhP33,550
(US\$477.32 to US\$780.33)
excluding woman's opportunity cost
- ✦ 15 to 20 *banyera* @ PhP1200 to PhP1500 per *banyera*
- ✦ 4 to 5 sacks salt @ PhP200 to PhP250
- ✦ Labor cost
 - Washing fish @ PhP15/*banyera*
 - Splitting @ PhP80/*banyera*
 - Piling fish @ PhP20/*banyera*

How much is lost when fish-in-process spoil?

For a PhP5000 (US\$116.28) investment . . .

- Day 2 -- fish is sold at low prices:
PhP2000 (US\$46.51)
LOSS: PhP3000 (US\$69.77)
- Day 3 -- fish is sold at much lower price
PhP500 (US\$11.63)
LOSS: PhP4500 (US\$104.65)
- Day 4 - 5 -- fish is thrown to the sea or buried
LOSS: PhP5000 (US\$116.28)

What do women do in order to lessen the impact of climate change?

- Nothing ... climate change is beyond control
- No alternative livelihood
- Not to follow others who burn their garbage
- During sunny days, buy and dry more fishes and put dried fish on stock.
- Not to buy big volumes of fish for drying

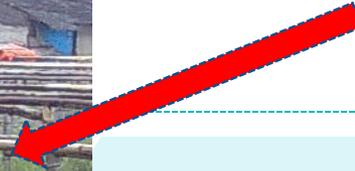
What do women do in order to lessen the impact of climate change?



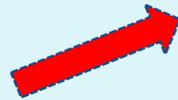
- Prepare more rubberized cloth to cover the fish when rains come
- *Kapins* are light and can easily be carried by women
- Not to do other tasks . . .but to remain glued to the drying fish under the sun --- prepared with covers should rains fall
- Predicting the climate:
if it rains/sun shines for 3 consecutive days, it will be sunny/rainy on the 4th day



Kapins are light



Rubberized cloth,
trapal



What do women do in order to lessen the impact of climate change?



- **Watch the news on TV**
- **Be sensitive about signs/indicators in the environment:**
 - When the wind is coming from the East, it will rain
 - When there are no stars at night, it will rain the following day
 - Watch the forms and movements of the clouds
- **Pray to God for a good weather**

What are the most urgent issues?



- **Women are perpetually in debt**
 - *When weather is so unpredictable, the frequency and volume of spoiled fish increases*
 - *Income from sales of dried fish is low since volume of production has decreased*
- **New money is used to replace lost incomes/capitalization due to frequent spoilage of fish-in-process.... not to expand business**

What are the most urgent issues?



- It seems to be a woman's duty to look for new capitalization/new sources of loans
- Repayment of debts on a regular basis is difficult
- Full dependence on the sun for fish drying
- Absence of a storage facility
- Absence of a fish drying facility



The drying area,
bublaran



Bamboo stands,
tangnan

What must be done?



- Provision of a common service facility: storage and driers
 - PROS --
 - ✦ Less spoilage of fish
 - ✦ Continuous supply of dried fish
 - ✦ Air in the vicinity will smell fresh
 - CONS --
 - ✦ Fish dried under the sun is glossy and shiny
 - ✦ Additional cost for electricity and operations of a common service facility
 - ✦ Will not employ the women workers

What must be done?



- **Look for alternative sources of income --- and for the government to help identify these sources**
- **Capacity development and technical assistance on improving quality and shelf life of the dried fish produced**
- **Any additional capitalization must be accompanied with a better fish-drying technology or an alternative livelihood**

Which way to go?



- In as much as the effects of climate change will be on woman's access to and control over productive resources, it is imperative for effective strategies to be hinged on the following (World Fish Center, July 2009):
 - ***Diagnosing women's vulnerability to climate change***
 - ✦ *Exposure of the women fish driers to climate change*
 - ✦ *Their degree of sensitivity to specific climate change-related impacts*
 - ✦ *The adaptive capacity of the women fish driers to the impacts and threats brought about by climate change*

Which way to go?



- ***Knowing the women's coping mechanisms and adaptive responses***
 - ✦ *May enhance resilience in the future*
 - ✦ *May reduce vulnerability*

- ***Strengthening climate change mitigation***
 - ✦ *Towards enhancing sustainability of the fisheries sector where the women fish driers actively participate in*

- ***Building women's adaptive capacity to respond to climate change***
 - ✦ *Enhancing the resilience of the most vulnerable group such as the women in coastal communities*

Which way to go?



reduce
women's vulnerability
to climate change

and

build
women's resilience
in key economic sectors

How gender-responsive is an adaptive climate change strategy?*



- Involvement of women and men in problem identification and design of the intervention
- Collection of sex-disaggregated data and gender-related information
- Gender analysis and identification of gender issues

* Adopted from a generic instrument developed by the NCRFW, 2009

How gender-responsive is an adaptive climate change strategy?*



- Clearly stated gender equality goals, outcomes, and outputs
- Matching strategies with gender issues and gender equality goals
- Gender analysis of likely impacts of the strategy

* Adopted from a generic instrument developed by the NCRFW, 2009

How gender-responsive is an adaptive climate change strategy?*



- Monitoring of gender equality targets and indicators
- Sex-disaggregated database for M&E
- Synergy with other agency's GAD efforts
- An exit plan to ensure sustainability of the intervention/strategy

* Adopted from a generic instrument developed by the NCRFW, 2009

How gender-responsive is an adaptive climate change strategy?*



- Involvement of women and men in problem identification and design of the intervention
- Collection of sex-disaggregated data and gender-related information
- Gender analysis and identification of gender issues

* Adopted from a generic instrument developed by the NCRFW, 2009



**Women fish driers have
ample local knowledge
on climate change
mitigation and
adaptation .**



Paper presented during the 9th AFAF, April 21-25, 2011, Shanghai, China