VULNERABLE WOMEN ROLE IN SECURING HOUSEHOLD INCOME UNDER THE CIRCUMTANCES OF CLIMATE CHANGE IN BRACKISH WATER POND BUSINESS IN PATI REGENCY, CENTRAL JAVA- INDONESIA : TOWARD ADAPTATION AND MITIGATION STRATEGY

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MAP OF STUDY AREA
PATI REGENCY- CENTRAL JAVA

INTRODUCTION

- Significant role: fisheries sector to the coastal community; and agriculture sector to the inland/ coastal community, providing:
  - employment
  - food supply
  - research
  - other utilisation: energy, art, etc.
- Problem: Supply < Demand

PROBLEMS

Decrease in Milkfish production

Water Salinity
Extreme in Climate → Farming efforts (Rp) are increase
High tide-> erosion
Loss of harvest

Decrease in production→ Collapse in Household Income→ seeking help ! Rescued by wife & other party .

Women as a rescuer in household expenditures

KEYWORDS

- CLIMATE CHANGES
- WOMAN
- VULNERABLE FISHERIES
- COASTAL COMMUNITY
- PATI REGENCY - INDONESIA

THE OBJECTIVITIES OF STUDY

- To analyze the vulnerable fisheries resource in the study area;
- To explore how vulnerable of fishers to response the climate change.
- To identify how vulnerable of fishers women to rescue the household economy under the climate change;
- to set up an adaptation and mitigation strategy for women (as housewife and/ or daughter) in the brackish water ponds business to secure their household expenditures in order to cope the climate change.

This is on-going research

Vulnerable in Fisheries Resource → perhaps due to:

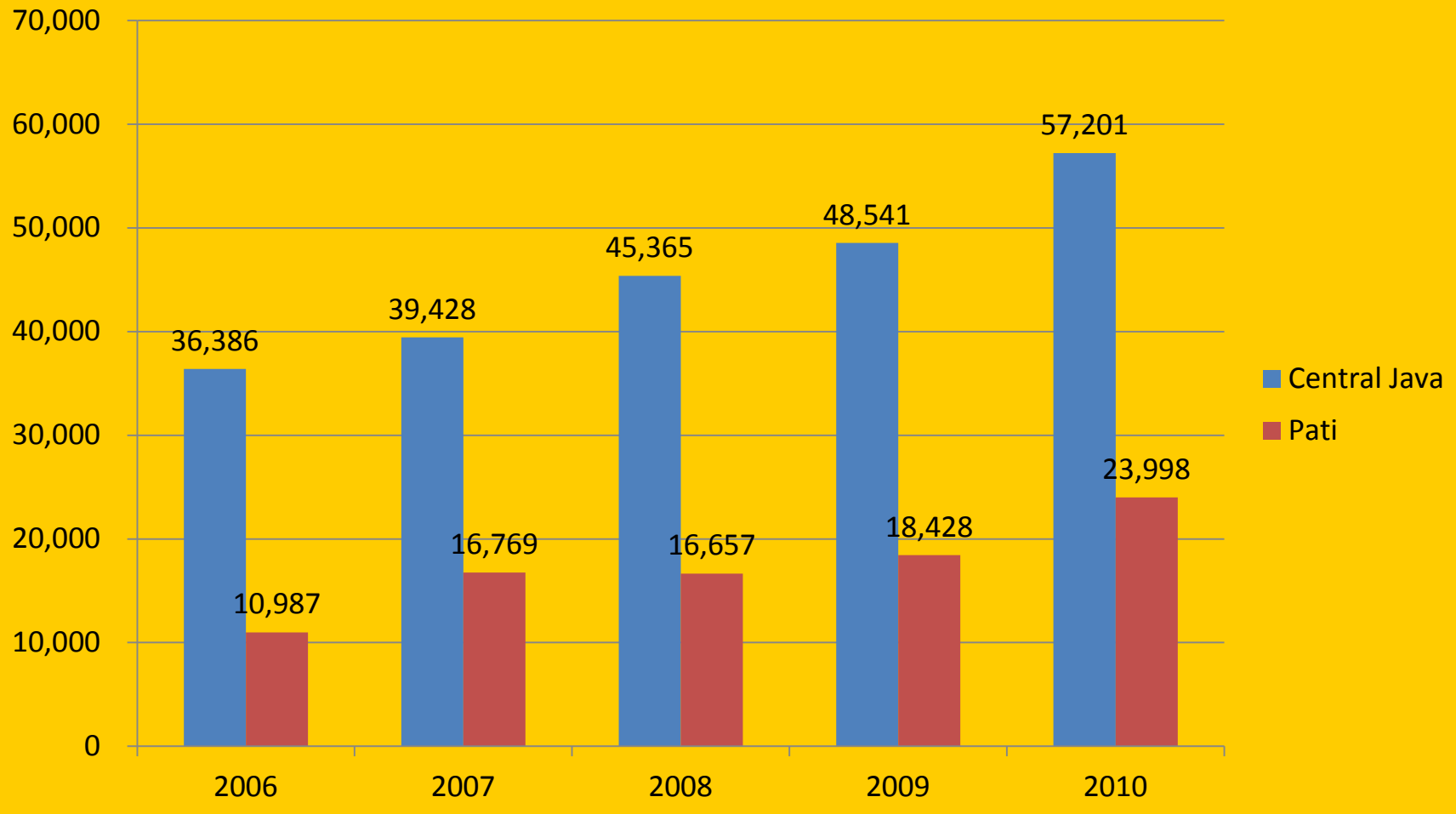
- **Declining in Stock**
- **Climate Change**
- **Higher Demand → higher population**
- **Environmental Quality deteriorated**
- **Empowerment is less**

Milkfish Production In Indonesia

PROVINCE	TAHUN							
	2003	2004	2005	2006	2007	2008	2009	2010
NANGROE ACEH DARUSSALAM	8,131	8,844	4,424	8,007	14,421	17,197	17,505	20,455
SUMATERA UTARA	0	0	0	0	373	64	97	2,027
SUMATERA BARAT							9	11
RIAU	139	108	76	12	15	169	369	932
JAMBI		451	604	872	559	1,523	1,670	2,010
SUMATERA SELATAN	82 -		68	802	972	1,008	1,141	1,299
BENGKULU	44	13	15	205	71	47	492	367
LAMPUNG	2,953	3,654	5,611	7,197	10,831	10,785	11,286	6,496
KEPULAUAN BANGKA BELITUNG		129	75	22	6	7	27	69
KEPULAUAN RIAU					83	13	7	13
JAWA BARAT	25,600	23,802	24,073	30,053	32,582	38,092	38,902	66,146
DKI JAKARTA			184	93	1,745	2,429	754	1,043
JAWA TENGAH	38,770	35,778	33,649	36,386	39,428	45,365	48,541	57,201
DI YOGYAKARTA		1	7	4	2	6	11	6
JAWA TIMUR	58,278	68,196	83,889	38,696	63,366	37,274	61,154	76,976
BANTEN	4,703	3,581	4,134	4,367	4,400	5,292	5,782	11,071
BALI	14	704	115	67	131	38	860	123
NUSA TENGGARA BARAT	3,281	819	217	690	482	431	451	1,023
KALIMANTAN BARAT	346	568	90	417	950	1,022	1,733	2,826
KALIMANTAN TENGAH	545	1,323	920	752	612	601	1,175	1,782
KALIMANTAN SELATAN	771	932	1,232	1,652	4,244	5,256	8,852	10,239
KALIMANTAN TIMUR	5,887	4,670	12,829	5,653	7,736	6,517	9,196	17,317
SULAWESI UTARA	63	33	33	56	68	113	47	344
SULAWESI SELATAN	61,238	68,073	58,715	57,013	59,999	60,549	64,790	78,181
SULAWESI TENGAH	561	4,367	4,955	4,793	5,238	5,313	5,349	5,364
SULAWESI TENGGARA	8,848	9,290	9,956	4,456	3,765	20,209	26,461	32,812
GORONTOLO	512	1,090	1,160	123	609	1,586	2,081	3,821
SULAWESI BARAT				4,081	2,932	8,639	12,833	14,159
MALUKU	1	1	8	6	5	6	7	3
MALUKU UTARA	5	3	360	3	3	4	4	79
PAPUA	439	457	362	203	394	658	784	720
PAPUA BARAT				1,374	38	65	43	56

Sumber : Kementrian Kelautan dan Perikanan, 2011

Milkfish Production
In Central Java Province and Pati Regency (ton)



Sumber : Kementrian Kelautan dan Perikanan, 2011

FISH-FARMERS IN JUWANA – PATI REGENCY

Water Salinity Kit

Owned by Farmer

Fish-pond Extesion Officer

Fish-pond Profile

Ferilizer & Pallet in Fish Farming

Materials and Method

Study Area :
- Pati

Tools of Analysis :
- Quantitative and qualitative

Data and Sampling

- The study employs mixed-method between quantitative-and-qualitative
- Primary data are collected from the relevant parties or stakeholders.
- In-depth interview and Focus Group Discussion with key-persons and other competence informants were carried out,
- while secondary data are used to enrich the analysis.
- Sampling Method: Snowball Sampling (n=9, at this moment)

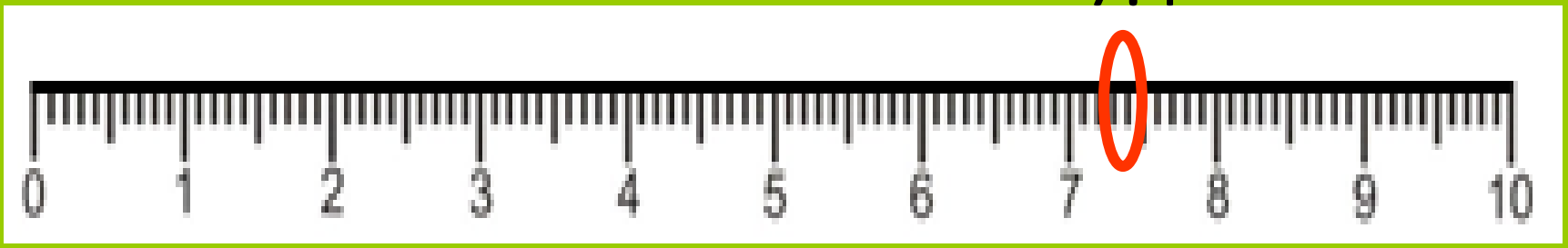
Standardized Climate Change Indication

No	Variable	Descrption	Scale: 1 to 10
1	High-tide	Increase	7.4
2	Water salinity	Decrease	7.0
3	Changes in temperature	Increase and often	8.0
4	Rainfall	Increase and not sure	7.8
5	Fish production	Decrease	6.1
6	Maintenance cost	Increase	8.6

Standardized Farmers' perception: High-tide

INCREASE

average score :



-Seldom

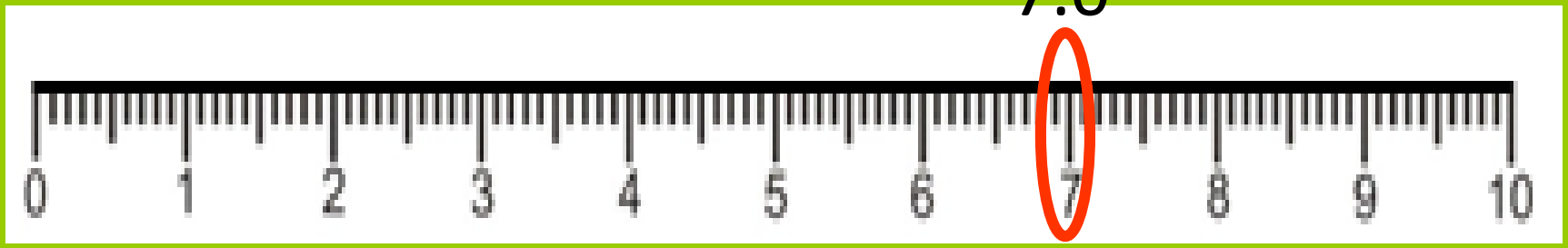
-Often

Standardized Farmers' perception : Water Slinity

DECREASE

average score :

7.0



-Seldom

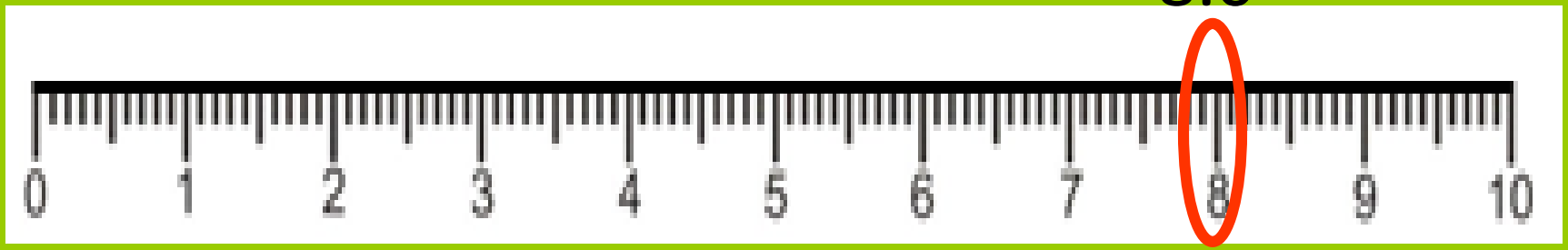
-Often

Standardized Farmers' perception : Air Temperature

INCREASE

average score :

8.0



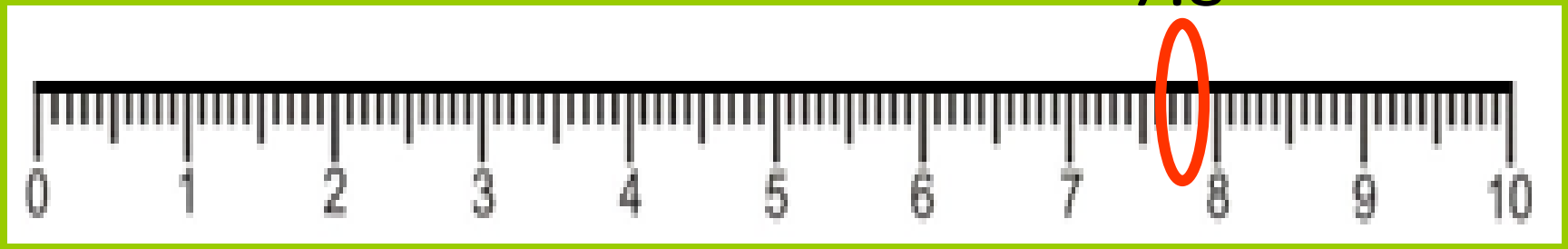
-Seldom

-Often

Standardized Farmers' perception : Rainfall

INCREASE

average score :



-Seldom

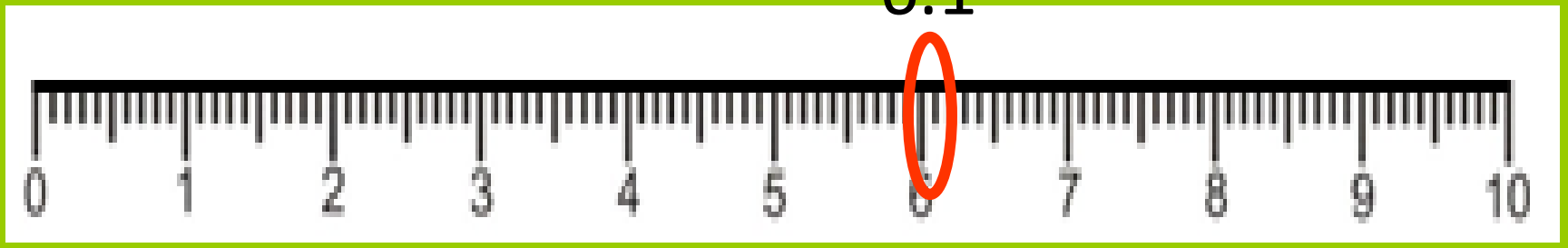
-Often

Standardized Farmers' perception : Production volume

DECREASE

average score :

6.1



-Seldom

-Often

WOMEN ROLES

Roles: 1. Reproduction

No of children	Husband & Wife
Rearing/ look after the Children	Together, but mother with the most
Take care of House	Wife

Role: 2. Managing Community

Group activities/ gathering : econ, social, culture, etc

Networking to establish safety net (econ, social, culture, etc)

Role: 3. Production

Housewive

Secondary Job of Women

Worker

In home-industries





The Product of Batik Industry

FINDINGS

- The brackish water ponds in study are signaling decrease in productivity lately.
- Similarly to the capture fisheries resource and even severly almost and/ or had have been over-exploited.
- A lots of efforts have been putting on to manage both of resources. Several conventional fisheries management had have been employed but might not performed effectively some how adversely due to climate change.

- In facts many parties have not prepared yet to react for the adaptation with such uncertain situation.
- However, it was wondering that the fish-farmers in the study area are remain survive some how to secure their household expenditure although they are suffering from climate change.
- One of the important actor to overcome this uncertain situation perhaps mainly due to the women role in their family.

STRATEGY

Adaptation for CC: through Empowerment Program

Community	Previously	Adaptation
FISHERS		
Decision Making		
•To start: planting, harvesting, etc	-Seeking advise of the blessing day from the respected person -Using a natural signal to start their activities: star, moon, wind, etc	extension information system: ICT
•Awareness of Climate Changes	- Everything are in normal condition	There is changes phenomena of climate → Need improvement of awareness
•Technology	Using traditional/ conventional technology (in production until marketing)	-Required application of technology to accommodate the climate changes : -Diversification of farming commodities (for safety strategy to avoid a failure harvest) - to select a hybrid seeds. -etc
•Enterpreneurship	Single job (milkfish farmer brackish water)	-Multiple job (trader, processor, and other secondary job) -Capacity building (ability to

Adaptation for CC: through Empowerment Program

Community	Previously	Adaptation
Wife		
Reproduction		
•No of children	There is family planning but not so tied	Always thinking for safety net to secure their family (including for the number of dependent family members)
Production	As house wife	Seeking additional income
Managing Community		
Group activities/ gathering	Involved in several unproductive activities	Preferably involved in productive activities
Life style	Conventional	Intend to do updating with current situation (information, technology, communication)
Academician (A), Business (B), Government (G)	Less concern to climate change issue	Improve in participating to cope the climate change.

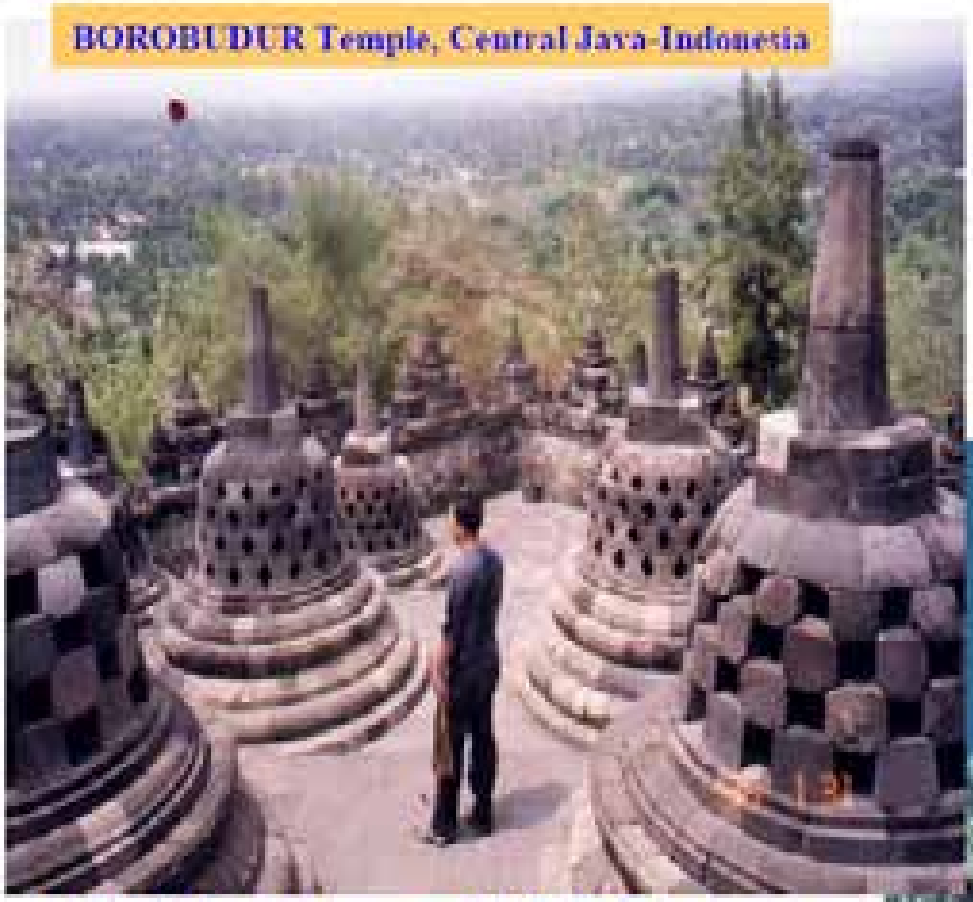
MITIGATION for CC

- PHYSIC: growing vegetation of mangroves and other coastal vegetation to structure from sea level rise (tide), wave, etc.
- NON-PHYSIC: need adjustments in behavior of farmers and their community in socio-economic, habit, culture, life-style, etc.

CONCLUSIONS

- The research indicated that several evidence of climate change were found in some extents of brackish water pond business.
- In short time, prescription on adaptation strategy to cope the climate change in the study area is indeed needed.

- The impact on vulnerable fisheries in the study areas are significant and women role are found fantasticly to secure a though situation of household income.
- Wife/ women fishers need to be intensively empowered to support the household economy as one of the climate change survival efforts and betterment of the community's welfare/ happiness.



Congratulate to the Organiser:

Welcome to Indonesia

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- *INDAH SUSILOWATI:* is a professor at the Faculty of Economics & Business, Diponegoro University (UNDIP), Semarang–Indonesia. She was the head of Research Institute of UNDIP. She is a lecturer in Faculty of Economics and several postgraduate programs in UNDIP. She engaged in the Directorate of Higher Education Degree, Ministry of Education, the Government of Indonesia as reviewer for research works & accreditation of study program since 2005.

- Besides that she also provides consultancy services to several Local Governments and institutions in the region.
- She is a member of Asian Fisheries Society (AFS) and International Institute of Fisheries Economic and Trade (IIFET). She also collaborated with Worldfish to promote sustainable fisheries in the region. She has high commitment in advocating the green environment, fisheries management and conflict resolution to the competent communities or stakeholders.

- She completed her Master and Ph.D. programs in resource economics from the Faculty of Economics and Management, Universiti Putra Malaysia (UPM). Her dissertation (1998) entitled "Economics of Regulatory Compliance with Fisheries Regulation in Indonesia, Malaysia and the Philippines". She did thesis (1991) entitled :Welfare Impact of Improved Boat Modernisation (IBMS) in Pemalang Regency, Central Java, Indonesia". Her B.Sc. was pursued in the Faculty of Economics, UNDIP where she is attached now.
- She had has presented and published papers in national and international forum.

THANKS YOU
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