

Seaweed Sector: Women's Contribution in Seaweed Farming, Wild Harvest, Value Chain and Societal Development



By

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Special Session- The Gender Rhetoric in Global Seaweed Sector (8th Global Symposium on Gender in Aquaculture and Fisheries, 21-23rd November,2022, Kochi)

Global Scenario



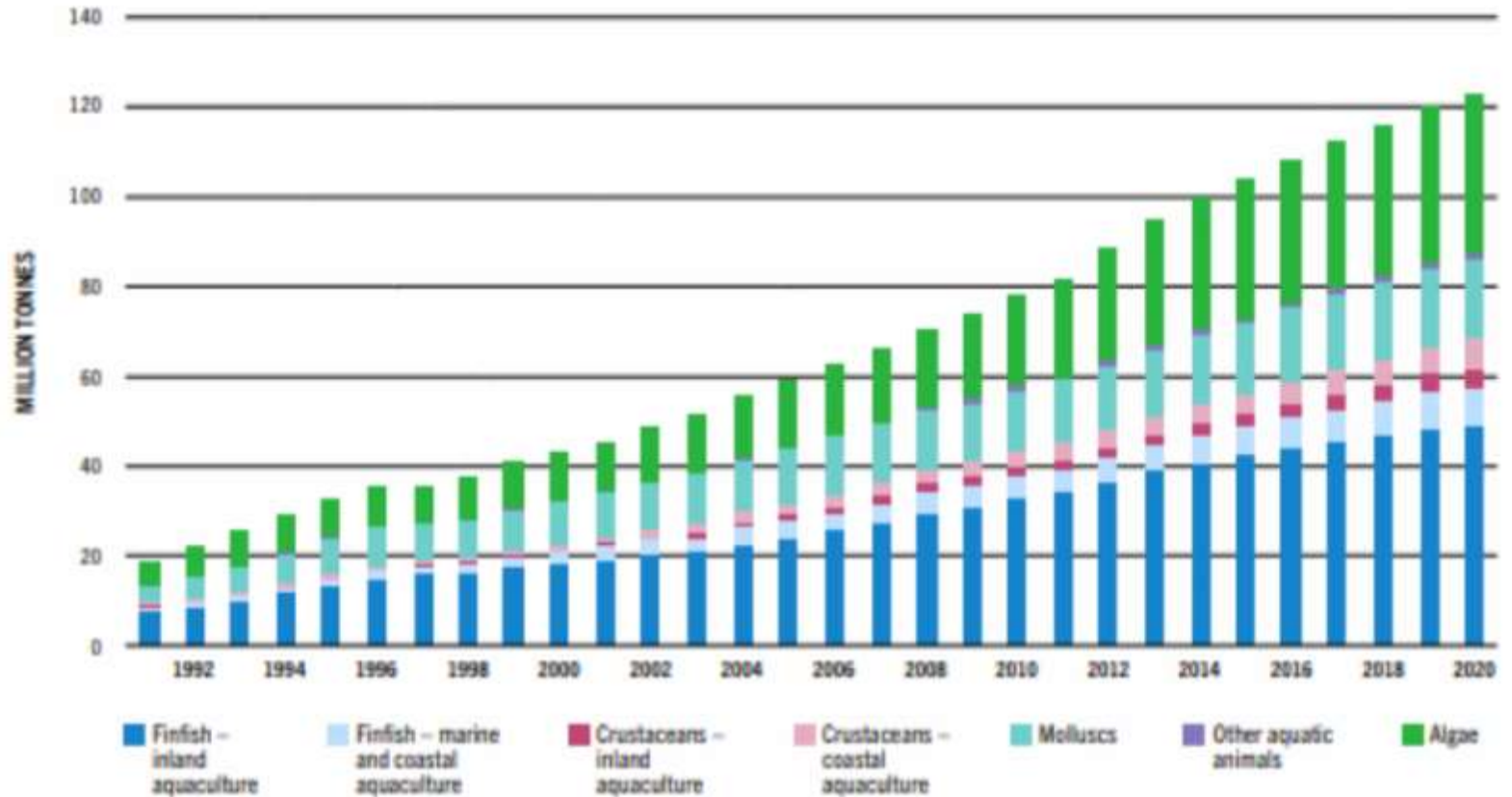
- Global cultivation of algae is dominated by marine macro algae (Seaweeds)
- Contribute for socio-economic transformation of coastal communities
- Algae production = 35.1 Mt  1.4 %
- **Seaweed harvests in South-East Asia and Korea (2020)** 
- Seaweed industry estimated at a total value of USD 14.7 billion

FIGURE 13 WORLD AQUACULTURE PRODUCTION, 1991–2020

World Aquaculture Production 1991-2020



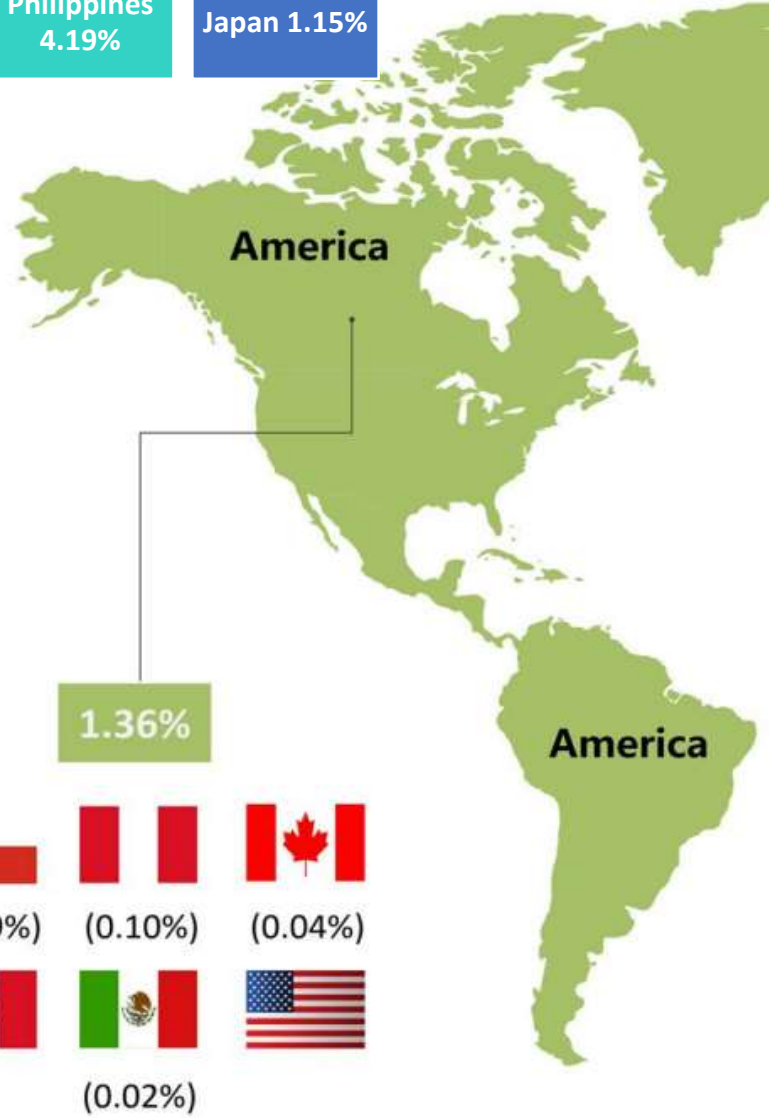
NOTES: Data exclude shells and pearls. Data expressed in live weight equivalent.
SOURCE: FAO.

Global Aquaculture



0.80%

97.38%



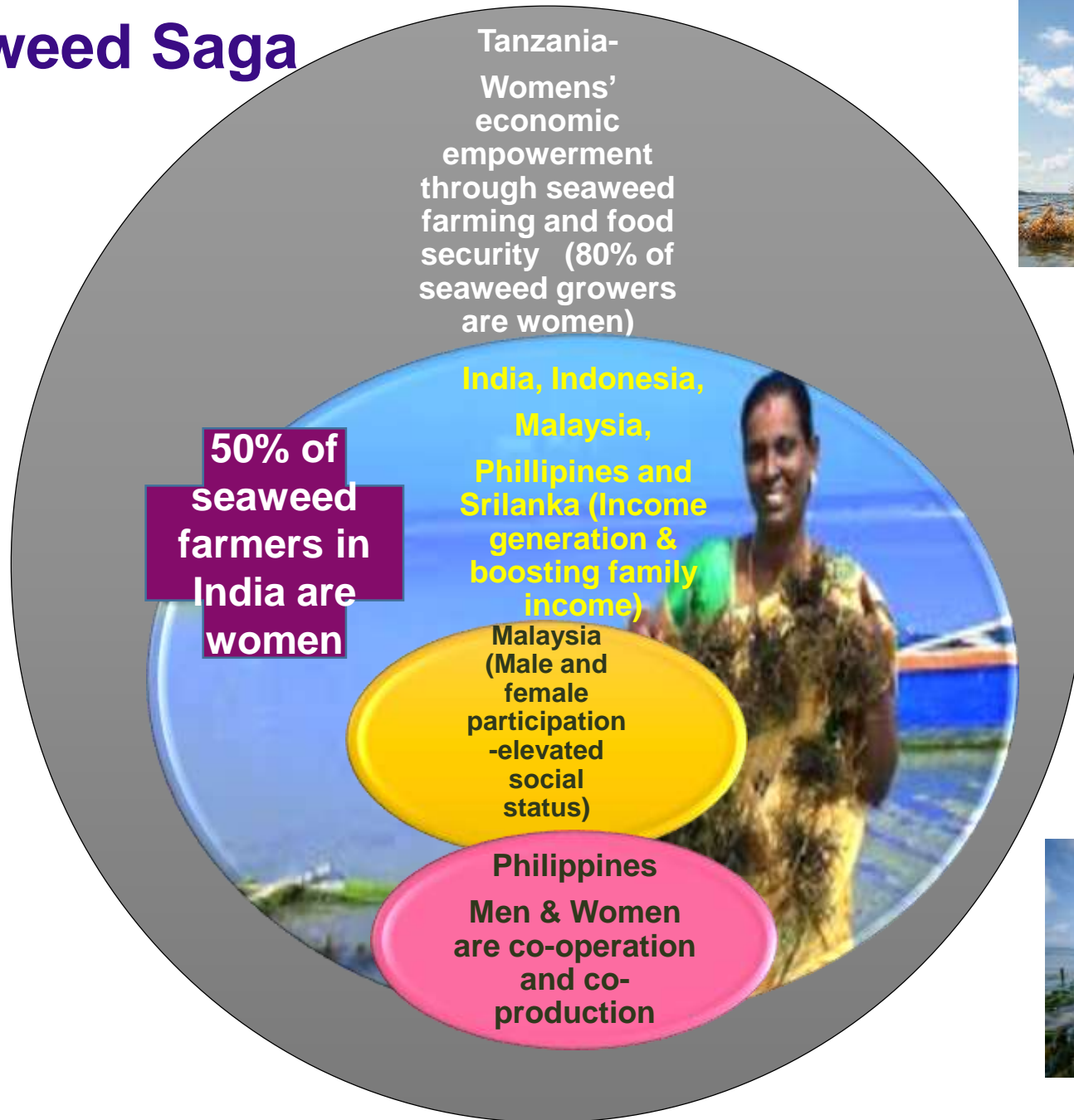
Gender and the Seaweed Saga



Developing Economies of the world



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Algae (Seaweeds + Microalgae)
30% of Aquaculture production

Seaweed as food

(Japan -4th Century, China-
6th Century) & Republic of
Korea



Source of Hydrocolloids-
Agar, Alginate, Carageenan



Seaweed farming has led
to Socio-economic
empowerment of tens of
thousands of households
especially women



Global Seaweed Cultivation (Share of continents in %)

Asia
99.10%

Oceania
85.32%

Africa
81.29%

Americas
4.69%

Europe
3.88%



Table 1: Global seaweed production, 2019

Country/area	Total seaweed production (farmed and wild)		Seaweed cultivation	
	Tonnes (wet weight)	Share of world production (%)	Tonnes (wet weight)	Share in farmed and wild production (%)
World	35 762 504	100.00	34 679 134	96.97
Asia	34 826 750	97.38	34 513 223	99.10
1. China	20 296 592	56.75	20 122 142	99.14
2. Indonesia	9 962 900	27.86	9 918 400	99.55
3. Republic of Korea	1 821 475	5.09	1 812 765	99.52
4. Philippines	1 500 326	4.20	1 499 961	99.98
5. Democratic People's Republic of Korea	603 000	1.69	603 000	100.00
7. Japan	412 300	1.15	345 500	83.80
8. Malaysia	188 110	0.53	188 110	100.00
Rest of Asia (7 countries/territories)	42 047	0.12	23 344	55.52
Americas	487 241	1.36	22 856	4.69
6. Chile	426 605	1.19	21 679	5.08
Peru	36 348	0.10	-	-
Canada	12 655	0.04	-	-
Mexico	7 336	0.02	10	0.14
United States of America	3 394	0.01	263	7.75
Rest of the Americas (6 countries)	904	0.00	904	100.00
Europe	287 033	0.80	11 125	3.88
9. Norway	163 197	0.46	117	0.07
France	51 476	0.14	176	0.34
Ireland	29 542	0.08	42	0.14
Russian Federation	19 544	0.05	10 573	54.10
Iceland	17 533	0.05	-	-
Rest of Europe (5 countries)	5 741	0.02	217	3.78
Africa	144 909	0.41	117 791	81.29
10. United Republic of Tanzania	106 069	0.30	106 069	100.00
Zanzibar	104 620	0.29	104 620	100.00
Tanzania (mainland)	1 449	0.00	1 449	100.00
Morocco	17 591	0.05	273	1.55
South Africa	11 155	0.03	2 155	19.32
Madagascar	9 665	0.03	8 865	91.72
Rest of Africa (2 countries)	430	0.00	430	100.00
Oceania	16 572	0.05	14 140	85.32
Solomon Islands	5 600	0.02	5 600	100.00
Papua New Guinea	4 300	0.01	4 300	100.00
Kiribati	3 650	0.01	3 650	100.00
Australia	1 923	0.01	-	-
Rest of Oceania (3 countries)	1 099	0.00	590	53.66

Source: FAO, 2021c. Fishery and Aquaculture Statistics. Global production by production source 1950–2019 (FishStatJ).

Notes: The top 10 seaweed producing countries are indexed. "-" indicates zero or no data.

Seaweed farming as a livelihood Strategy

TANZANIA

- Started in Zanzibar in 1989
- Earlier occupations were subsistence farming and small scale fisheries
- These traditional occupations were replaced by seaweed farming
- More women have abandoned these occupations to adopt seaweed farming compared to men
- Has led to increased standard of living, improved health of adults & children, better material possession and houses

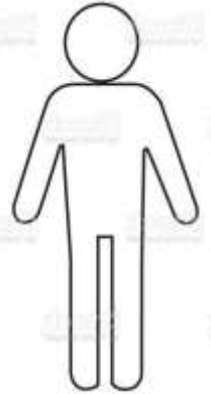
Positive and negative impacts on domestic life & livelihoods



Women are more patient to complete the life cycle and have forbearance for labor intensive work

90% are women farmers in Zanzibar

Men are more in to fishing, construction activities



In Tanzania both equal participation of both men and women in seaweed farming

Increased mobility of men

Conflicts between seaweed farming and Tourism

Increased domestic conflicts, men in to land based cropping unassisted by women counterparts

Fatigue, increased musculo skeletal pain, underwater injuries and allergies

Increased mobility of women

Independent income earners, emergence of child day care centers

Indonesia: Women in Community based farms

POSITIVE IMPACTS

Increase in household income. (Contributing to 50%)

Women in most cases as main income earner

Non participant women also involved in seaweed processing & value addition (soaps, ice cream, cakes)

Better quality of living standards in terms of health, housing, transport & quality education .



SOCIAL EVILS

Side effects-
Increased spending on alcohols drugs, prostitution

Few marital conflicts due to women as main income earners in areas like South Sulawesi

Solomon Islands

A Family Enterprise

Equal Participation by both men and women in seaweed farming

Greater extent of women participation (in number) lead to proportionate increase in household revenue

Men are involved in packing and selling
Men spend 68% of annual working time,
Women spend 32% of annual working time



Distance between production sites and homes

. Limit womens greater involvement
Seperates children from parents
Deprives children of formal education if involved in family labour



Mens involvement

More in physically demanding packing of dried seaweed crop.



Contribution for social services

Regular cash flow, easy to operate, provide future for households & an environmentally friendly activity



GENDER AND SEAWEED HARVEST FROM WILD

Wild
harvest
(>5%) of
total
producti
on



**32 Countries
Annual harvest
(800,000 t)**

Countries	Contribution to wild harvest (%)
Chile	42
China	28
Canada	4
France	3
Iceland and Japan	2
South Korea,	1
Morocco,	1
South Africa	1
USA	1



Role of Gender in Wild Harvest of seaweeds



INDIA

Customarily by women



Wild seaweed harvest

- Sustainable harvest - a societal issue
- Community level self imposed restrictions
- In Ireland, Japan- Principle of Equality & Reciprocity

HAWAII

Customarily by women and children

BRAZIL

80% of the harvesters are women

IRELAND

Women gathered seaweed, worked in fields, attended to household duties and children. They sold the seaweed in neighbouring towns.

Men suffered neither of these hardships

SOUTH AFRICA

Majority of harvesters are women. Annual income from wild harvests was US\$5000

A traditional family based occupation

PORTUGAL

Women typically control the seasonal seaweed harvests

JAPAN

Seaweed harvest is customarily by women (Pyropia sp)

BRITISH COLUMBIA

Women travel in hand crafted canoes to seaweed beds for safety and companionship

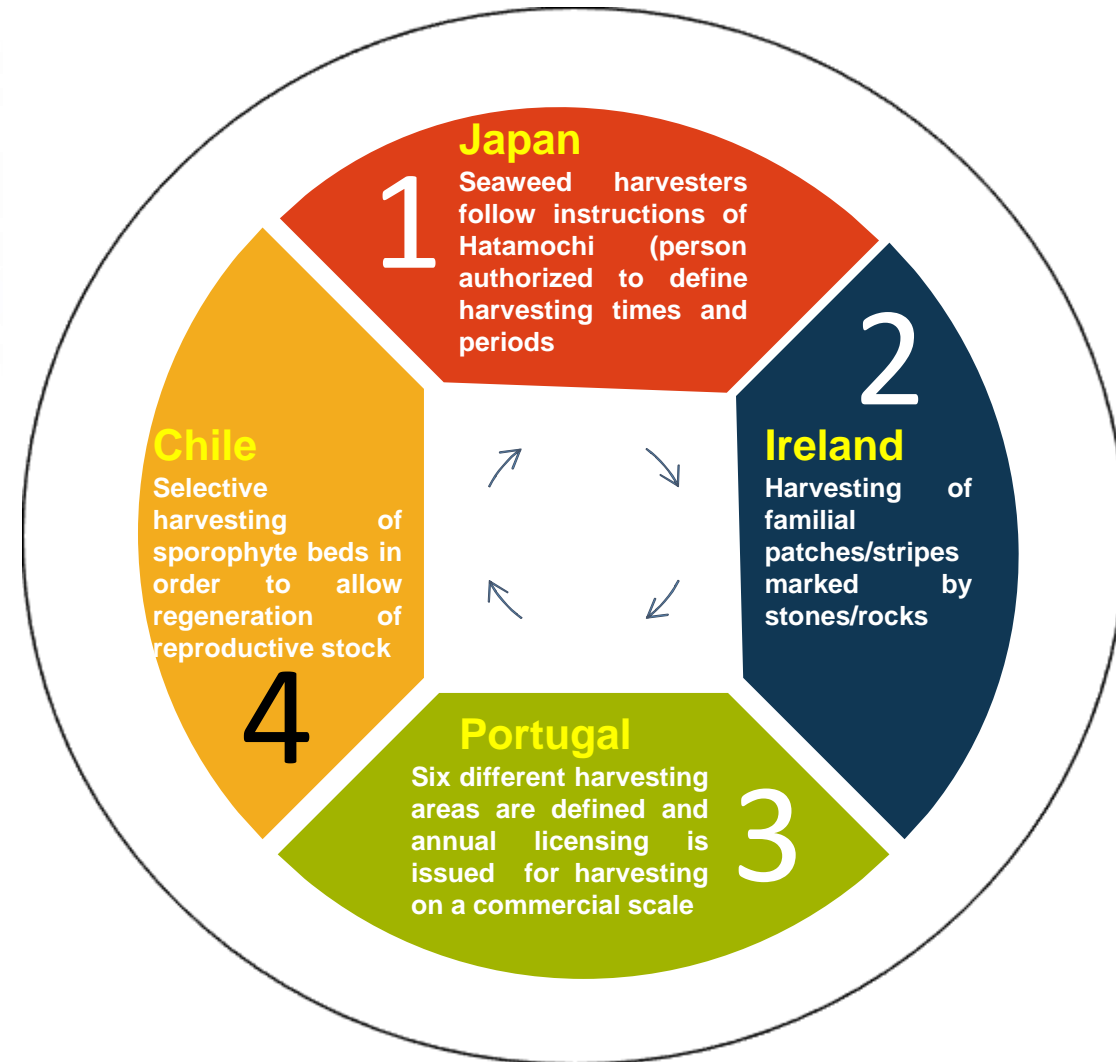
Global scenario in Wild Harvest

INDIA

Sustainable harvest methods followed by women include cutting erect fronds from targeted seaweeds, Harvesting during 12 days/month during spring tides, Avoiding use of sharp implements



GULF OF MANNAR & PALK BAY
(Av: Annl Income US\$1000)



Problems and Prospects –Seaweed Aquaculture from a gender perspective

TANZANIA & ZANZIBAR

- Women in Tanzania and Zanzibar who formed majority of seaweed growers became the bread winners of the family
- Divorced/widowed/single women became defacto heads of households
- Some developed conflicts with their husbands, in other cases both men and women in the family shared the home economics
- This gave women a more elevated and respectable status in society
- Quality education, higher levels of material possession, food, clothing, medical and housing facilities (Pettersson, Löfquist, 1995; Shechambo et al., 1996; Msuya, 2006, 2011, 2012; Eklöf et al., 2012).

South-East Asia :Phillipines



Contract farming in 1970's

- Male dominated



Family farming

- Man was the head of family, women had greater say in decision making at farm and home



Men & Women

- Co-operation
- Co-production



Super Typhoon "Haiyan" in 2013 led to extensive damage

Women proved their formidable strength

FAO Support (Training, Seaweed farming package)

INDONESIA

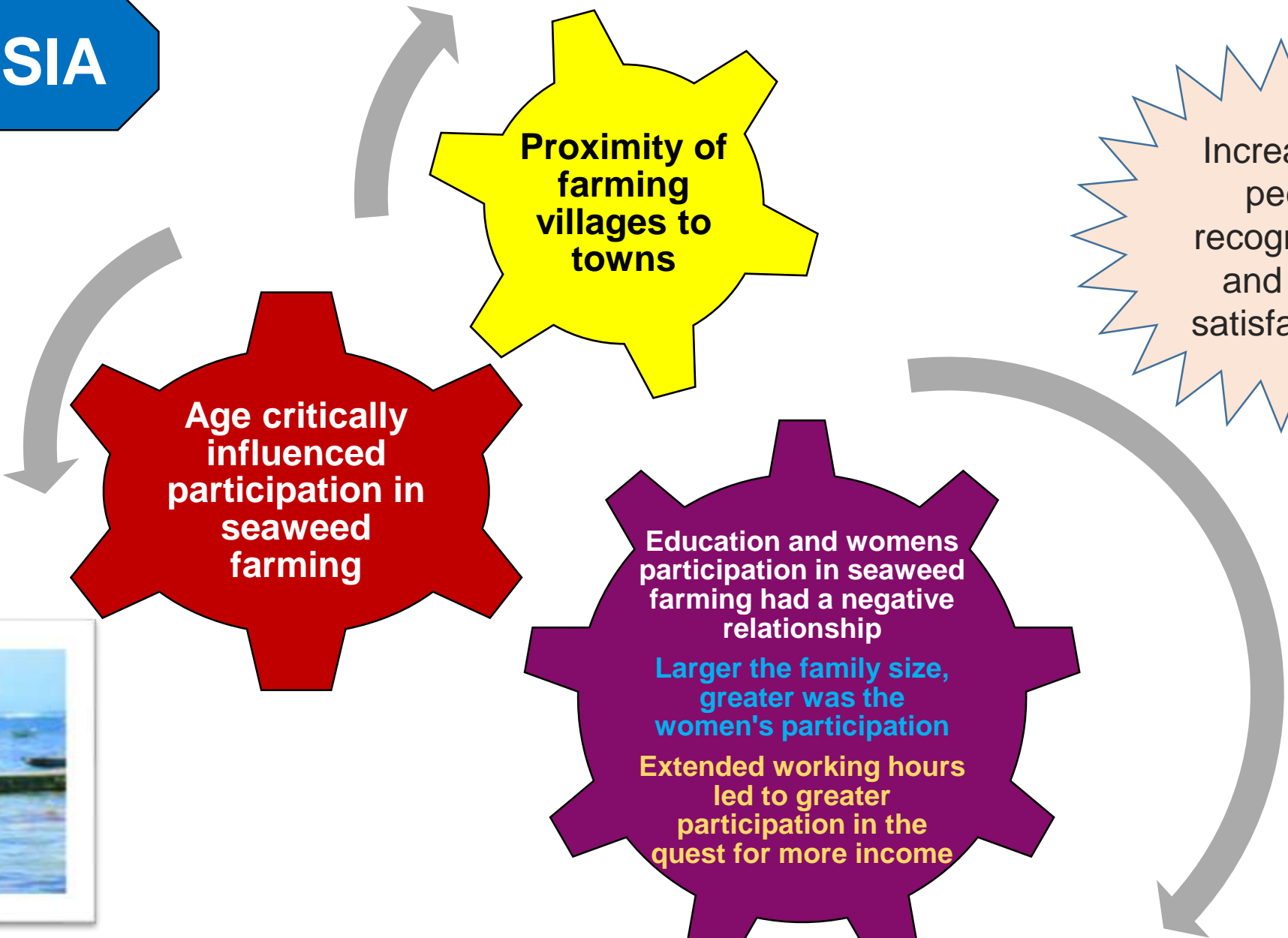


Age critically influenced participation in seaweed farming

Proximity of farming villages to towns

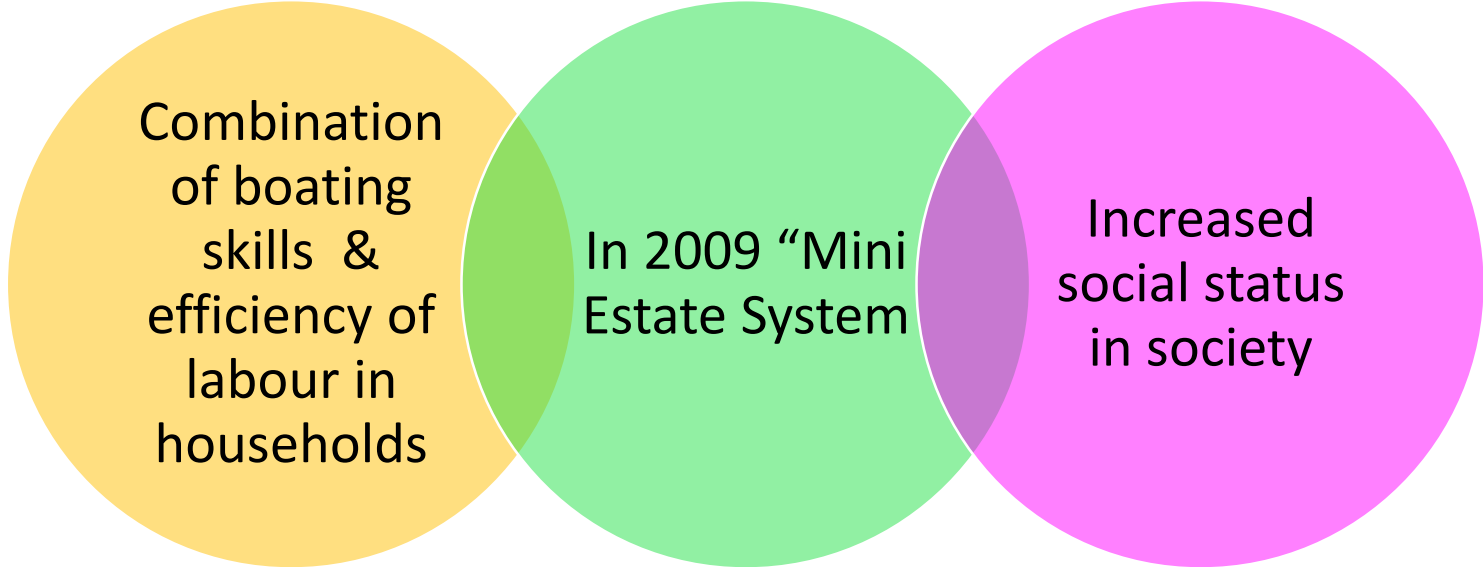
Education and womens participation in seaweed farming had a negative relationship
Larger the family size, greater was the women's participation
Extended working hours led to greater participation in the quest for more income

Increased peer recognition and job satisfaction



MALAYSIA

PARTIALLY SUCCESSFULL



IMPACT OF CLIMATE CHANGE ON WOMEN SEAWEED GROWERS, AFRICA



Unable to produce Kappaphycus

Kappaphycus cultivation helped them in buying for husbands new boats and houses

Forced to produce low value Eucheuma

Eucheuma cultivation led to less income



Women farmers of the Zanzibar Seaweed Cluster Initiative participated in new technologies to farm Kappaphycus

Value addition of Seaweed powder (1kg @ US\$6.4) & Seaweed soaps (US\$0.5-0.7/Piece)
1kg dry seaweed is US\$0.3



Msuya et al, 2014, 2017

Seaweed Farming in Ramanathapuram district, Tamil Nadu, India



5000 rafts



200 families

Each family in charge of 25-45 rafts

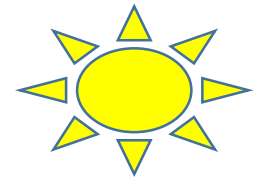
- Seaweed rafts are of size 12 ft x12 ft
- **Peak Season** of farming : June- July, average earnings /farmer: Rs. 15,000/month equivalent to 199 USD
- **Lean season** is February-March, average earnings/farmer: Rs. 10,000/month equivalent to 133 USD
- **Women** participate in family labour
- **As a laborer**, a woman's average earnings is Rs. 6000/month equivalent to 79.60 USD. Gets 7 months of employment/year
- **Per day** a woman is employed for 4 hrs and earns Rs 200 ie 2.65 USD





Virtual Dialogues

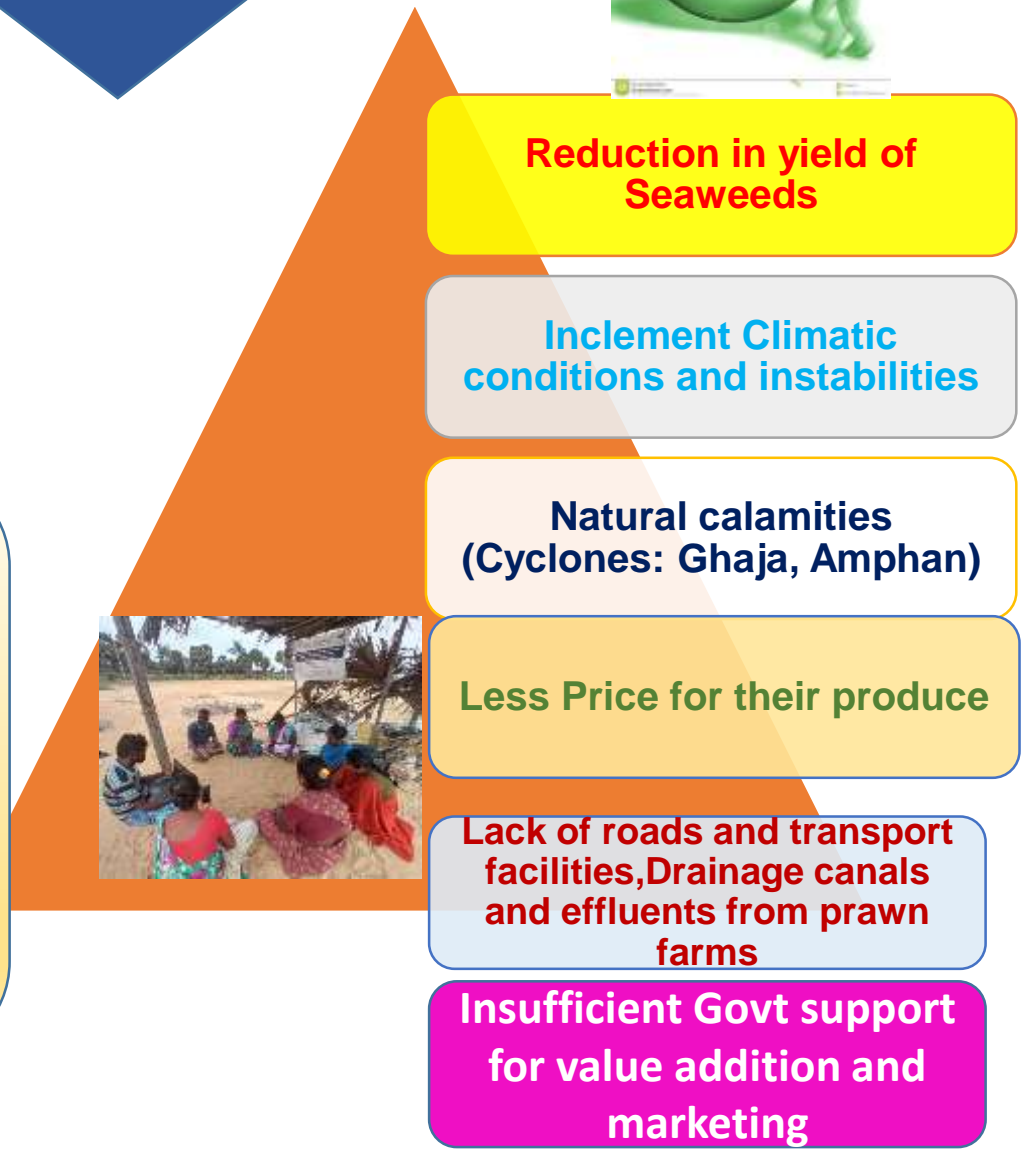
Major Issues



Enabling Factors for Women in Seaweed Farming

- ### Disabling Factors
- ✓ Apart from subsidy, farmers found it difficult for making their initial investment
 - ✓ High cost of inputs
 - ✓ Changing Govt norms

- Simple low cost technology
- High returns in a short period
- Women spend their income from seaweeds for upliftment of their families
- Can be practiced as a family enterprise with support from their men folk
- Enormous Governmental & Institutional support



IMPLICATIONS FOR POLICY

- The Seaweed value chain supports the livelihoods of approximately **6 Million small scale farmers and processors both men and women**, belonging to coastal communities of low and middle income countries
- Greater demand for Seaweed as food, food supplement, animal feed, biostimulant, alternative to fossil fuels and plastics
- Role in addressing UN SDG –SDG 14 (Life below water), SDG 13 (Climate action), SDG 6 (Decent work and economic growth) and above all **SDG 5 (Gender equality)**
- For this, focused attention to be paid to small scale farmers and processors to support development of *sustainable, inclusive and resilient* livelihoods

- Support the development and Implementation of industry wide standards for seaweeds that are gender responsive and applicable to both large and small scale producers –**Research on and conservation on seaweed micro biome** interaction genetic resource mappings working with local knowledge (Pest/disease resistant varieties)
- Studying the **family and community networks that underpin the early stages of the seaweed value chain** would help devise policies that enhance equity, particularly for women and informal seaweed farmers.
- **Strengthen gender disaggregated data on the roles of men and women** in the sector.
- **Participatory research in order to discern women's and men's needs** and address issues that traverse the supply chain is warranted.

- Crop insurance schemes in case of natural calamities
- Development of infrastructural facilities such as roads, resting places and toilets for women in particular
- Ensuring remunerative prices for seaweed by the government
- Training and literacy programs for women in the area of crop cultivation, disease management, processing, value addition and market dynamics
- More rafts/family to boost women's morale in farming



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