OFFICIAL FEEDBACK FORM

DIALOGUE DATE	Saturday, 26 June 2021 15:30 GMT +05:30
DIALOGUE TITLE	Seaweed Dialogues, India
CONVENED BY	Edible Issues, Gabriella D'Cruz, Takshama Pandit (Food is Political)
DIALOGUE EVENT PAGE	https://summitdialogues.org/dialogue/2321/
DIALOGUE TYPE	Independent
GEOGRAPHICAL FOCUS	India

The outcomes from a Food Systems Summit Dialogue will be of use in developing the pathway to sustainable food systems within the locality in which they take place. They will be a valuable contribution to the national pathways and also of interest to the different workstreams preparing for the Summit: the Action Tracks, Scientific Groups and Champions as well as for other Dialogues.

1. PARTICIPATION

TOTAL NUMBER OF PARTICIPANTS 73

PARTICIPATION BY AGE RANGE

0	0-18	27	19-30	17	31-50	4	51-65	0	66-80	0	80+

PARTICIPATION BY GENDER

20	Male	28	Female	0	Prefer not to say or Other

NUMBER OF PARTICIPANTS IN EACH SECTOR

01	Agriculture/crops	05	Education		Health care
6	Fish and aquaculture	02	Communication	01	Nutrition
	Livestock		Food processing		National or local government
	Agro-forestry	01	Food retail, markets		Utilities
13	Environment and ecology	07	Food industry		Industrial
	Trade and commerce		Financial Services	10	Other

NUMBER OF PARTICIPANTS FROM EACH STAKEHOLDER GROUP

11	Small/medium enterprise/artisan		Workers and trade union
05	Large national business		Member of Parliament
	Multi-national corporation		Local authority
	Small-scale farmer		Government and national institution
	Medium-scale farmer		Regional economic community
	Large-scale farmer		United Nations
05	Local Non-Governmental Organization		International financial institution
01	International Non-Governmental Organization	02	Private Foundation / Partnership / Alliance
	Indigenous People	06	Consumer group
07	Science and academia	11	Other

2. PRINCIPLES OF ENGAGEMENT

HOW DID YOU ORGANIZE THE DIALOGUE SO THAT THE PRINCIPLES WERE INCORPORATED, REINFORCED AND ENHANCED?

The idea to host the Seaweed Dialogues started with us recognizing the complexity of seaweed in India. We wanted to understand how we might build a better value chain for seaweed that puts people and communities at the centre. For the same, we brought together multiple stakeholders who were committed to this statement - either through being experts working with seaweed or experts from other parts of the food system who wanted to learn more about seaweed in India and share expertise from their own fields. By being active participants we understood the importance of inclusivity, trust and respect and envisioned this dialogue as a first step to complementing and building upon the existing community knowledge and scientific research keeping in mind the 2030 SDG's. Special thanks to our conversational leaders, facilitators and experts for volunteering their time to drive this conversation: Madhu Sundaran, Snigdha Sehgal, Shivani Unakar, Khushboo Gandhi, Arina Suchde, Aaron Lobo, Anumitra Ghosh, Nandini Mehrotra, Avinash Kumar, Dhyani Pareekh, Amala Mhaiskar, Dhaval Vargiya, Nisha D'souza, Monica Kavale and Nichola Dyer.

HOW DID YOUR DIALOGUE REFLECT SPECIFIC ASPECTS OF THE PRINCIPLES?

1. Act With Urgency: Participants were asked to visualize how the seaweed supply chain should function by 2030, as well as understand immediate actionables or steps that respective stakeholders can take to achieve those goals. 2. Commit to the Summit: Through our communications prior to the event and at the event, the Summit goals were mentioned. We had Vincent Doumeizel, Senior Advisor at United Nations Global Compact on Oceans and Director for the Food Programme for the Lloyd's Register Foundation as our keynote speaker. Vincent emphasized on the need for more action and innovation on seaweed in India and how this dialogue and future dialogues on seaweed in India were important contributions to the Food System Summit goals. 3. Be respectful: Our moderator, Takshama Pandit, guided the participants over listening and participating through ones perspectives, experiences, and questions, keeping in mind diverse backgrounds within each breakout room. 4. Recognise complexity: We had Gabriella D'cruz, a marine conservationist with a Masters in Biodiversity Conservation and Management from the University of Oxford present a brief overview on seaweed in India to set the content and emphasize the complexity of the value chain. 5. Embrace multi-stakeholder inclusivity: Our dialogue aimed at creating a space for people from conservation, policy, innovation, food, technology to come together and discuss the present and future of seaweed in India. 6. Complement the work of others: Participants were encouraged to share perspectives, experiences, and questions. 7. Build trust: This dialogue on seaweed in India was the first of conversations by our project Seaweed Saturdays. Through our diverse backgrounds itself this dialogue tried it's best to build a space to represent as many voices from the seaweed value chain.

DO YOU HAVE ADVICE FOR OTHER DIALOGUE CONVENORS ABOUT APPRECIATING THE PRINCIPLES OF ENGAGEMENT?

We encourage other dialogue convenors to emphasize the importance of involving multidisciplinary stakeholders. We felt that having individuals from academia as well as other professions allowed for a richer discussion. We were, unfortunately, not able to involve coastal communities directly in this conversation due to the technological gap, but instead invited individuals who have closely worked with them, and hope to involve the communities further during our next steps. We also believe that leaving the Summit with as many questions to ask, as were answered, is a good start since some of the topics being explored, like seaweed in India, are at a relatively nascent stage. We further believe that giving our complete attention to the Summit, while also pursuing other full-time jobs, was a challenge that proved to be easily overcome by planning in advance, and sharing the load with the team and volunteers.

3. METHOD

The outcomes of a Dialogue are influenced by the method that is used.

DID YOU USE THE SAME METHOD AS RECOMMENDED BY THE CONVENORS REFERENCE MANUAL?

✓ **Yes** **No**

4. DIALOGUE FOCUS & OUTCOMES

MAJOR FOCUS

The Seaweed Dialogues in India were held to focus on mapping the seaweed landscape in India, and understanding how seaweed impacts ecology, climate change, livelihoods, and nutrition in India.

In India, the states of Gujarat and Tamil Nadu dominate large-scale seaweed production. 282 seaweed species have been reported along Tamil Nadu's 1,000km (621 miles) coastline alone and in total, as many as 841 species of seaweed thrive along the Indian coast, though only a few are cultivated. The government's policies are likely to stimulate production further across various states. As seaweed garners importance, we aimed at hosting a conversation that provided an understanding of what the seaweed space currently looks like in India. We also wanted to understand how it can engage audiences in safe production and responsible consumption of seaweed without adversely affecting biodiversity and the ecosystem.

The Dialogues were aimed at creating a platform for a rich and engaging conversation from individuals, organizations, experts, and novice enthusiasts from various sectors. Since the industry is at its nascent stages in India, we invited participants from technology, policy, innovation, conservation, and food to discuss all the facets of seaweed. Our focus was to bring together as many experts, who often operate in silos, to come together and engage. We also began an online community called Seaweed Saturdays as a precursor to the Seaweed Dialogues to provide context to individuals who may have expertise in livelihoods, or innovation, but are still new to seaweed.

The reason for bringing these individuals together followed Action Track #1 "Ensure access to safe and nutritious food", as India has a high proportion of vegetarians who often lack protein, and seaweed has the ability to bridge that gap. It is touted as the next "superfood" but also holds the potential to meet the nutritional requirement for a larger population. This was a part of our conversation in the Discussion Group labeled "Conservationist Approach to Cooking and Eating with Seaweed,"

We focused on Action Track #2 "Shift to sustainable consumption patterns" - by bringing in speakers and participants from demand markets, e.g. innovators and chefs. The goal of this was to look beyond seaweed as a superfood and explore how to sustainably use the ingredient. The conversation also involved how to sustainably source particular species of seaweed and the building of direct connections with the communities involved in farming and harvesting seaweed. This was a part of our Discussion Groups labeled "Sustainable Seaweed Innovation" as well as "Conservationist Approach to Cooking and Eating with Seaweed."

Action track #3, "Boost nature- positive production" was a part of our conversation on sustainably farming seaweed, and the Discussion Groups "Mapping Seaweed in India" and "Seaweed Production & Policy". The first aimed at using technology to map seaweed species along our coastlines, while the second looked at the benefits of growing seaweed for the environment and coastal communities. It also evaluated how to do so conscientiously, and explored how policy can shape better practices. Currently, India has no policy that looks at seaweed, but as it increases the budget spends for seaweed, we wanted to bring in the discussion of how policy can be a tool in ensuring native species are encouraged and the biodiversity is retained, in an effort to balance people, planet, and profits.

Action Track #4 "Advance equitable livelihoods" and Action Track #5 "Build resilience to vulnerabilities, shocks, and stress" were both a part of our Discussion Groups "Equitable Livelihoods" and "Seaweed Production & Policy". We explored how the coastal communities, and primarily the women in these communities, can be provided fairer rates, and what can be done to safeguard their lives and incomes by evaluating safety standards and market practices.

Post our dialogues, our focus remains to continue these multi-disciplinary conversations in an effort to chart the actions that are required to positively impact the production and consumption of seaweed in India via Seaweed Saturdays.

ACTION TRACKS

✓	Action Track 1: Ensure access to safe and nutritious food for all
✓	Action Track 2: Shift to sustainable consumption patterns
✓	Action Track 3: Boost nature-positive production
✓	Action Track 4: Advance equitable livelihoods
✓	Action Track 5: Build resilience to vulnerabilities, shocks and stress

KEYWORDS

	Finance	✓	Policy
✓	Innovation	✓	Data & Evidence
✓	Human rights	✓	Governance
✓	Women & Youth Empowerment		Trade-offs
		✓	Environment and Climate

MAIN FINDINGS

Drawing on the current situations of other supply chains like cacao, seafood, etc. we recognized that it's important to have conversations on seaweed in India now, at an early stage rather than in hindsight, when the industry has grown to a point where we don't have a lot of control over it.

In the Discussion Group on Equitable Livelihoods, the conversation revolved around how organizations like C-Scapes would be responsible for translating the discussions and having conversations with coastal communities that are the most important stakeholders in the seaweed value chain. India needs more inclusivity, more safety standards, more involvement from banks and governments, and more research. Right now, the seaweed industry is dominated by a top-down or industry-led movement that looks at solely creating revenue from seaweed, but ideally, it should be from communities that are most affected and have the highest stake in this particular value chain. Safety standards and pricing could be improved too.

In the group Mapping Seaweed, we saw that it's important to have a conversation about how we can map seaweed and look at its intrinsic value. India has incredible seaweed reserves that contribute significantly to our biodiversity. Hence, developing ways of mapping the seaweed so that we can secure it for current and future generations is essential. We need to do it inclusively and have stakeholders, such as members of the fishing community, also involved.

In the group that focused on Nature Positive Seaweed Production, it was observed that there's not enough research to look at specific seaweed species. Right now, there's a large push to farm Kappaphycus Alvarezii, and Gracilaria Xorticata, or seaweeds commercially viable for hydrocolloids. But if we're developing more food products or nutritional products, then we need to look at the farming methods that grow those types of species. Land-based seaweed production can also grow seaweed in an integrated way, for example with shrimp farms, and open ocean farming methods such as Integrated Multi-Trophic Aquaculture (IMTA), can be used wherein which seaweed can be grown along with other species like mussels, oysters, and certain local fish to mimic natural ecosystems.

The next group, Sustainable Seaweed Innovation, explored how a range of seaweed ingredients could be produced for the health food market and the beauty industry. We saw that further conversations in innovation need to be guided by science as one may not want to get into a market where a rare seaweed is required, or a species is overharvested. We observed that it is important to have some safeguards developed along with the growth of these innovations.

For the final group, Cooking with Seaweed, it was noted that seaweed has a lot of potential as a food source. Seaweed forests are very biodiverse and important for our coastline. Therefore, we need to first look at how we can have a precautionary and sensitive approach to cooking with seaweed before we exploit it for the market. The government is currently incentivizing the expansion of seaweed industries for pharmaceuticals, feed industries, etc. but we need to look at it in terms of conservation. We need to be asking a lot of questions at this stage, such as - Who are the main players in the current market? Who has the most power along the supply chain? How can we get more communities integrated into the system?
Instead of a traditional top-down way of forming policy, we need to use a more localized and biodiverse approach to growing our seaweed industry.

At last, an action plan needs to be more inclusive than the Dialogues held. It would not be fair to have an action plan that doesn't include more conversations with communities and stakeholders that haven't been mapped yet.

ACTION TRACKS

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✓	Action Track 5: Build resilience to vulnerabilities, shocks and stress

KEYWORDS

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✓	Women & Youth Empowerment		Trade-offs
		✓	Environment and Climate

OUTCOMES FOR EACH DISCUSSION TOPIC - 1/5

Breakout Room 1 - Production and policy

The most important outcome of this breakout room was the realization that India has inadequate policies for the safeguarding and sustainable harvesting of seaweeds. Four main policy gaps recognized were:
1. Lack of policy for the mapping and safeguarding of seaweed forests (seagrass beds are notified as protected areas under the Coastal Regulation Zone Rules 2011, however seaweeds are not given this importance)
2. Lack of guidelines for the industry when it comes to the the sustainable harvest and production of seaweeds.
3. Lack of safety standards when it comes to communities (largely women) harvesting and producing seaweeds in rough waters.
4. Lack of policy when it comes to using seaweeds in foods that have the potential to improve the nutritional quality of food (for example - there was a suggestion to include seaweeds into common salt so it could be used as a natural form of iodized salt for communities lacking in iodine).

When it came to discussing the actual farming of seaweeds there were additional gaps discussed were:
- Lack of awareness of seaweed farming
- Lack of information on local seaweeds and how to farm them
- Low pay for seaweed farmers
- Limited zones where seaweed can be grown (limited to shallow bays and islands) whereas better production methods could allow for deeper water seaweed production

Some suggestions for actions to close these gaps:
- Toolkits and training for farmers to diversify into seaweed production
- More research and funding into seaweed production (especially native seaweed)
- Consider seaweed in food security policy
- Private sector integration for support for seaweed-based nutrition
- Diversification of aquaculture landscapes, of cultivated species, of seaweed based applications and solutions. Here there was the suggestion to use Integrated Multitrophic Aquaculture (IMTA) to grow seaweed along with other species such as muscles and oysters.
- Designing of different/safer seaweed farms to protect safety of coastal communities (mainly women) who farm, harvest and process (at present most of the women who harvest are dependent on men to drive the boat to the rafts/farms)
- Hold seaweed consuming/ dependent industries accountable to fairly pay those at the grassroots.
- Incentivize the use of seaweed based materials/products by shifting the perceived value of seaweed products

The group also identified certain actors needed to take this forward
- Researchers and research institutions
- Farmers
- Coastal communities
- Private sector industries
- Policymakers
- Conservationists
- Designers

How could these actions come to fruition?
- Incentivizing shifts in the existing models
- Incentivizing procurement of seaweed
- Incentivizing the expansion of landscape under seaweed production
- Incentivizing the exploration of native species and their production and potential
- By creating a shift in the value assigned to seaweed and its derived productions
- By applying technology to make the use of seaweed-derived products more efficient, cost-effective and lucrative
- By considering all stakeholders involved in the production and use of seaweed
- By considering seaweed ecosystems as rich, diverse ecosystems, similar to land forests, and treating them as such.

ACTION TRACKS

	Action Track 1: Ensure access to safe and nutritious food for all
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KEYWORDS

	Finance	✓	Policy
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		✓	Environment and Climate

OUTCOMES FOR EACH DISCUSSION TOPIC - 2/5

Breakout Room 2 : Seaweed Mapping

This breakout room had an expert with a background in robotics and mapping. The expert discussed the various reasons mapping seaweed is important and methods through which this could be carried out. The group envisioned the seaweed value chain to be one where seaweed forests were mapped to understand their diversity and ensure harvesting and farming was carried out in a sustainable manner.
1. Transparency: Right from harvesting to remuneration, where it is going and what it looks like ecologically. All of these combined should make the value chain adaptable and manageable.
2. Data: To create an equitable industry around seaweed, we have to make sure that it is done without exploiting the ecological balance. Both in terms of food security and climate solution, seaweed is considered a great solution. But before we begin to extensively work within the ecosystem, we must have baseline data to work with to know how much can be harvested sustainably. We must collate this data before launching an industry around it.
3. Conservation: To create a sustainable supply chain we need to know where and what species of seaweed is present to better conserve them. Discovering tide pools, marine creatures, documenting species in the particular area will help provide an understanding of the intrinsic and ecosystem value of the seaweed forests
4. Coastline Management: Mapping seaweed can be useful for managing the coastline better and understanding the biodiversity and ecosystems present in these areas. The coastline is one of the most vulnerable spaces to climate change. It in addition isn't very well regulated. The laws that can change the way the coastline looks in the future, as Goa has seen recently with the new Coastal Regulation Zone Plan. If seaweed forests are mapped - then the government can avoid designated spaces that have seaweed forests to ports or other large maritime infrastructure projects and can instead plan for demarcating these areas for conservation and as traditional fishing zones.

What are the actions needed to create a climate-resilient, socially equitable, and environmentally sustainable seaweed value chain?
1. Seaweed mapping can be carried out through Spatial Analysis carried out in macro scale where the whole coastline is documented bit by bit and they can be stitched together to create high resolution images.
2. This method can be used to identify potential tide pools or sites with seaweed. Satellite data and aerial drones are flown over the potential areas to collect the data. A tide pool mapping can be as short as 20-30 mins. Processing the data requires bandwidth and some technical skills. Most projects can be done within a week. Software like Mappillary can be used in the process. Challenging side is the actual plan and design for the particular project, the legalities, social, ecological, how to use the data etc
3.The data collected does not have to be technical, it can be done with a community of people as a learning experience. A GPS tagged photo is valuable as well in seaweed mapping or identifying sites. A collaborative approach would be very valuable in bringing out this outcome. Mapping seaweed forests can be a very effective citizen science initiative.
4. Identifying the species present in these areas are also incredibly important to the mapping process.Photos of marine species can be added to any citizen science platforms like iNaturalist helps you identify what you see can be a good learning experience and data for others.Using platforms available to everyone is extremely important to the mapping of seaweed and marine life present.These are all the different levels of mapping that vary from least expertise needed to the highest level where technology comes in the form of robotics. All of these methods will lead to more comprehensive data.
5. An ideal way of going about mapping seaweed forests and tidepools would be an interdisciplinary mapping process of the tidal ecosystem using tech, ecologists, social scientists etc.

ACTION TRACKS

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KEYWORDS

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OUTCOMES FOR EACH DISCUSSION TOPIC - 3/5

Breakout Room 3 : Sustainable Seaweed Innovation

Sustainable Seaweed Innovation was one of the most attended breakout-rooms with attendees from a range of backgrounds ranging from chefs, to material designers to tech entrepreneurs. The following discussions took place with regards to imagining a seaweed value chain over the next decade.

1. More efficient ways of processing seaweed to allow for the creation of a larger range of products. The current processing method involves harvesting the seaweed wet, then sun drying it and storing it. The shelf life of algae varies according to climatic conditions and storage process, however there is a lot of intervention needed at the processing stage to be able to improve the quality of seaweed for the market.
2. A range of potential products were discussed including, biofertilizers from seaweed, polysaccharides from seaweeds, anticidal pesticides for the land based farming sector, plant based protein, new forms of superfoods for eg Energy gels, and seaweed masks.
3. There was also a conversation around Indian influenced seaweed products that could be created such as Chaas (buttermilk) + powder and seaweed garnish for various Indian street foods or fast foods. Plant based meats from seaweeds were also discussed.
4. There was also talk around making seaweed an affordable nutrient source and particularly protein source for everyone. One gets all the necessary micro and macro nutrients from one source i.e. seaweed. Dairy protein is not enough and cheese and milk is often not affordable for the masses. A protein rich and nutrient rich seaweed product would be a great product for the larger Indian market.
5. Different sectors of potential application could be explored such as energy, textile, print, fiber, packaging , adhesive, paint etc other than medicine, food, cosmetics and food additives.

What are the actions needed to create a climate-resilient, socially equitable, and environmentally sustainable seaweed value chain?
1. Start processing and manufacturing seaweed by-products in India. Example - Propylene Glycol Alginate is not made in India, Pectin price keeps fluctuating, so having a production of certain seaweed based gels that are currently not available would be an interesting move.
2. Adapting the taste of seaweed. Making it a direct edible food source.
3. Introducing new products in the market for direct consumers. Positioning it as a superfood.
4. Encouraging Startups to sell seaweed-based products. That will create demand.
5. More innovation needed for farming seaweed but also for processing and extraction of certain elements from seaweed.

Which actors will need to be involved?
1. Large established businesses such as Amul and Tata Salt, that can create products such as a seaweed protein.
2. Local businesses who can encourage the growing seaweed industry
3. Government bodies to approve food licenses for seaweed based products.

What are the tensions we have identified and how can we manage them?
One of the main tensions identified was how the kind of seaweed industry that evolves, will influence the price and value of seaweed farmed or harvested. For eg the phycocolloid industry requires higher biomass of seaweed however the seaweed is bought from farmers at a low cost. In a similar way, even though there is an interest in creating seaweed based packaging, there is also the need to be cognizant about how making seaweed cheap enough to make seaweed bioplastic, will reduce the cost of seaweed at source. This will then impact not only the seaweed farmers as they will earn less per kg of seaweed but they might also continue to overharvest seaweed to make up for the lower price. Alternatively creating a high value market might lead to increasing the market price of seaweed and allowing the farmers a better income.

ACTION TRACKS

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KEYWORDS

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OUTCOMES FOR EACH DISCUSSION TOPIC - 4/5

Breakout Room 4 - Equitable Livelihoods
The following discussions took place with regards to imagining a seaweed value chain over the next decade.
-Need for diversified livelihoods: Seaweed collection is highly seasonal (for example collection lasts only 2 months in Kutch). Different activities (fishing or tourism) can supplement income.
-Training & Education: Group training programs across fisheries sectors can be a start to working towards integrating communities for diversified livelihoods. Educating farmers about processing, to help them understand the process and value of their product better.
-Multi-trophic aquaculture approach: Local seaweed livelihoods simultaneously allow for other livelihoods like sustainable fish farming, farming bivalves, mollusks, and cleaning coastal water as well.
-Support the small scale farmers: We need to devolve decision-making, include people in different subsystems and invite a diversity of people to a seat at the table. Seaweed farmers and fishers need to have stronger involvement in decision making. In India, whether seaweed farmers or fish farmers, they have a greater interest in biodiversity, and when they earn they spend in local economies. Bringing them into the decision making circles would be a way of strengthening the functioning of policies as well as making sure these policies are more effective on ground as they have been co-created. Self organization for better cooperation was also suggested.
-Enabling infrastructure: Right now only a tiny fraction of the end price of coastal products reach the farmer. Farmers also need to understand the current seaweed value chain and be able to better influence prices.
-Role of Women: Women are the ones managing the ecosystem at the local level and women in the coastal community are also some of the most affected by climate change. Coastal women need to be invited to decision making spaces and their aspirations and fears need to be addressed if there is going to be change in the industry.
-Value chain building: There is a lot of economic stress felt by the fishing and seaweed farming community and an immediate shift in the industry could leave members without work and pay and that will be dangerous to the wellbeing of many members. If the supply chain is short and direct, there is less room for value to not accrue to farmers/collectors. Need for better means of impact assessments along the supply chain and having an end-customer education piece so people know and care about your equitable practices was discussed.
-Policy: There is a need for policies for seaweed's impact on climate change mitigation: eg could be Blue carbon credits and payment for ecosystem services
-Data Gap: There is an enormous data gap when it comes to both mapping the seaweed supply chains as they exist today as well as mapping the ecosystems that seaweeds are extracted from and there is a need for reliable data within an institutional framework. Having the farmers be involved in it is also important. FAO collects some data, but it's very unreliable because it relies on country information, therefore local data is needed. Having someone be responsible for data whether an agency or university department or government is vital.

What are the tensions we have identified and how can we manage them?
One participant stated that the conflict between conservation and livelihood generation was present in some seaweed farming areas and there should be interventions that ensure this doesn't happen on other farms.
One of the participants had visited the Self Help Groups in the Gulf of Kutch to see how they harvest seaweed. The farmers said over time plastic pollution is increasing and oceans are warming and it now takes them longer to purify and clean seaweed, and the harvest is less in quantity as before. They mentioned that other farmers get subsidies on grinding machines, they would like this too.
A certain Indian research institute had studied seaweed farming in closed ecosystems, however some of the species including kappaphycus alvarezii ended up escaping into the ocean. Safeguards for dealing with invasive or pest species of seaweed should be put into place.

ACTION TRACKS

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✓	Action Track 5: Build resilience to vulnerabilities, shocks and stress

KEYWORDS

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		✓	Environment and Climate

OUTCOMES FOR EACH DISCUSSION TOPIC - 5/5

Breakout Room 5 - Cooking & Eating Seaweed

Visualize how the seaweed supply chain or ecosystem should function by 2030
-Community/Farmers are taken care of and educated on the importance of harvesting sustainably
-Fair pricing and minimal to no middlemen/agencies
-Shorter supply chain
-Local bodies/governments controlling policies
-Less dependence on imported varieties
-More consumer awareness/demand

Actions needed to take this forward
-Keeping the community at the core of the industry
-Educating fisherfolk about seaweed cultivation and harvesting practices
-Education and Awareness among coastal communities/farmers as well as chefs and consumers
--Research and data records
-NGO/Non-Profits working with local authorities to help create fair policies and make sure the industry is not exploited
-Making sure to build upon systems that already exist rather than create a parallel industry
-Research and data on mapping locations and suitable species of seaweed.

Actors that need to be involved
-Local panchayat/state governments
-Local coastal communities
-Marine Scientists
-Conservationists
-F&B Industry
-Consumers

Tensions that need to be resolved:
-Overharvesting – Best way to manage this is constant training and education
-Big industries/companies taking over areas and the coastal communities being exploited – Making sure the community has more control over the cultivation, harvest, and sale. Fair policies and support from authorities.
-Lack of awareness and education among consumers – More research and information needs to be published to show people the importance of seaweed in our environment and our diets and ways to incorporate it into our regular meals

ACTION TRACKS

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AREAS OF DIVERGENCE

In the Discussion Group “Sustainable Seaweed Innovation”, a divergence emerged concerning the use of seaweed for edible and non-edible purposes. Out of a group of over 25 people, only 3-4 individuals thought there was potential to use it for non-edible purposes. There were also a few strong comments on the fact that seaweed should not be used for packaging etc. There were also discussions on using non-edible seaweeds or by-products of edible seaweeds for packaging, textiles, etc.

Seaweed markets: Some want to move into bioplastics and biofertilizers which is mass harvesting/ farming and low value whereas others feel more niche markets like food and cosmetics are better as they are low biomass and high value industries.

Conflict between conservation and livelihood, wherein seaweed farms are touted as good for fisher livelihoods, however some seaweed farms that grow an invasive species of seaweed (kappaphycus alvarezii) are harmful for the local ecology.

An important discovery was that although there was a lot of interest in seaweed from the audience that attended the conference, members from the “ Sustainable Seaweed Innovation “ breakout room admitted to having no tactile or physical or visual connection with seaweed to explore applications. They expressed an interest in knowing more and there was also an apprehension in terms of not knowing what seaweeds are edible or not. There is clearly a need to explore the various ways in which people perceive seaweeds and how they can be further brought to engage more actively with the seaweed value chain.

ACTION TRACKS

✓	Action Track 1: Ensure access to safe and nutritious food for all
✓	Action Track 2: Shift to sustainable consumption patterns
	Action Track 3: Boost nature-positive production
	Action Track 4: Advance equitable livelihoods
	Action Track 5: Build resilience to vulnerabilities, shocks and stress

KEYWORDS

	Finance	✓	Policy
✓	Innovation		Data & Evidence
	Human rights		Governance
	Women & Youth Empowerment		Trade-offs
		✓	Environment and Climate

ATTACHMENTS AND RELEVANT LINKS

RELEVANT LINKS

- **Seaweed Saturdays**
  https://www.notion.so/Seaweed-Saturdays-c4aea9da82564b9e90a8b1da1276f08d
- **C-Scapes (Expert Participant)**
  http://www.cscapes.in/
- **The Good Ocean (Expert Participant)**
  https://www.instagram.com/thegoodocean/
- **Safe Seaweed Coalition (Expert Participant)**
  https://www.safeseaweedcoalition.org/
- **Quicksand Studio (Expert Participant)**
  http://quicksand.co.in/
- **Tech For WildLife (Expert Participant)**
  https://www.techforwildlife.com/
- **Go Do Good (Expert Participant)**
  https://www.go-dogood.com/
- **Edible Archives (Expert Participant)**
  https://ediblearchives.com/
- **MEEN SCIENTIST (Expert Participant)**
  https://meenscientist.com/blog/