

“ Diversity is the fundamental principle to use ”

Aquatic foods and food systems have long lived in the shadow in agricultural research. Last year's award of the World Food Prize could change this. Prize recipient Shakuntala Thilsted on healthy nutrition for the poor and vulnerable, the role of progressive governments and simple solutions with a big impact on women's empowerment.

Ms Thilsted, last October, you were awarded the 2021 World Food Prize, often referred to as the “Nobel Prize for Food and Agriculture”. Would you have ever expected to receive this award?

No. I never thought it would come to me, especially because traditionally the focus in food and agriculture is still largely on food crops, on livestock, while aquatic foods don't figure much. So in that respect I was extremely happy to get the award because it was shining light on an area that is unrecognised and underrepresented in the global narrative.

Was does this award mean to your research work?

Well, I have to say that a number of things came together last year. 2021 was also the year of the UN Food Systems Summit, where I was able to bring in aquatic foods and aquatic food systems quite prominently. There was a lot of talk about land and food at the Summit, but not much about water, so it was very opportune to be able to bring in water systems and foods from water, both marine and inland. And we had COP 26 in Glasgow, Scotland, integrating food systems and climate. Now, for example scientists are talking about the value of seaweed, molluscs and low trophic aquatic foods which are good for nature and the environment. At the same time, I can bring in the aspect of aquatic foods being superfoods and being nutritious, especially for the poor and vulnerable. So there has been a lot of good convergence. But research investment still largely concentrates on food crops rather than on aquatic foods.

You are a co-author of the UN Nutrition discussion paper on the role of aquatic foods in sustainable healthy

diets. In a nutshell, what is so special about aquatic foods?

The first thing is their diversity. For when we talk about aquatic foods, especially in high-income countries, for example, they may know salmon and they may know tuna. When you go to a village in Bangladesh and you ask children to name fish species for you, in next to no time, you can get 50 names. I doubt this would be the same at a Danish school. And it is not just the case with fish, but with other animals, plants and microorganisms as well. The way how aquatic foods are used, especially in low- and middle-income countries, is also quite different from the ways people use these foods in rich countries. Here, we know about the slice of fish or grilling a piece of fish, whereas in poorer countries in Africa and Asia, we have mixed dishes bringing with them vegetables, spices and the whole fish. And then there are all the nutrients coming with this rich diversity. It's not just protein, it's minerals, it's vitamins, it's essential fatty acids, so again you have a diversity of contributed nutrients, which is important. And with COP 26, there is also the focus on sustainability. Aquatic foods are good for the people and for the environment.

Only four per cent of food systems-related research since 1970 has included aquatic foods. Why has the role of aquatic foods and food systems in research been overlooked for such a long time?

I have asked myself that question too. Just look at milk powder, which has been used for school-feeding programmes for five generations now. Even in rich countries, where you don't need it, you still have milk in school programmes. And then, look at the nutrition-

al value of fish powders and how fish powder can contribute to nourishing children in Africa. Milk has calcium and protein, but not much else, whereas fish powder comes in with vitamin B12 for cognition. This neglect of aquatic foods could have something to do with strong private sector influence. Look at the big companies that work with grains, for example, where many interests and much money are involved.

So why did you decide to focus on this topic in your research work?

Most people working with food and within agriculture start from the production side and the inputs for production. But I start with consumption. Looking at consumption data, you see what the important foods for people's diets are, you see their value for supplying nutrients. You end up looking at a greater diversity and a greater range of foods. Unfortunately, with our agricultural patterns, we have moved to monoculture, and I think we have not fully realised the danger we have put ourselves in by looking at agriculture and food with this very narrow lens. Just imagine the cost of overweight, cardiovascular diseases and diabetes all of which are related to the ways we produce and eat food. What if we took some other very important factors into consideration, for example the effect of proper nutrition on cognition? Instead of thinking about food as provoking diseases and heart attack, we could say: Wow, let's look at the way we eat and think about how we can positively influence school performance. What a difference this would make!

And why aquatic foods?

I left working with rice and vegetables because I see the power of aquatic foods with all its nutrients being superfoods. Another reason was that I did much of my work in Bangladesh, which is highly dependent on aquatic food. But this applies for many countries in Africa as well, where the food with the highest density of nutrients is dried fish. It is also eaten by population groups living very far from the coast who get fish from inland water bodies. Dried fish is easy and inexpensive to move across borders because it doesn't need refrigeration. But the only way women can preserve the fish is with sun-drying. If we had developed very good systems for solar-drying, if we had proper packaging for this fish, we would save so much loss and waste we have with this very important



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food. More than a third of the food produced globally is lost and wasted. So shouldn't we be putting our investments in research in reducing loss and waste rather than in producing more?

What developments do you see in aquatic food-related research?

I see that now people are talking more about diversity and not just salmon production for the rich in aquaculture. The link to climate is also becoming more important. And more groups are working with the nutritional value of different aquatic foods. What also is about to change is that when we talk about quality, we should be really considering both nutritional quality and food safety. Food safety is an area that needs a lot of work going forward.

Which brings us to the knowledge gaps ...

Aquatic foods is new on the agenda of foods, so the gaps are big compared to staple food crops like rice or maize. And they are across the board. For example, a lot of women are engaged in capture fisheries. These women are invisible in the data. There are also big data gaps with respect to which aquatic foods are consumed and by whom, as well as regarding nutrient content and composition, and the food safety aspect. We know nothing about microplastics in aquatic food. Research should also be done on the complementarity of foods. When you combine foods, how does this give you better value than each of the separate foods? There are components, food substances, that enhance the value of the other foods. That's an area of work that no-one has touched as yet. Another aspect is that so far, the research focus has been on the monetary value – what you produce, how much you can sell, at what price, what the monetary value is for the exporting countries ... But monetary value is only one value. For instance, how would you value a nutritious food which promotes school performance or a woman's health? A healthy woman goes on to having a healthy child and gives intergenerational benefits. So, our global notion of value only as monetary value is extremely short-sighted and narrow.

You were also Vice Chair of the UN Food Systems Summit 2021 Action Track 4 – “Advance equitable livelihoods:” How can aquatic foods contribute to this goal?

Action Track 4 was the only one of the five Action Tracks that was specifically on people, and the focus that we took was on women, youth and indigenous peoples. Look at the number of women working in aquatic foods, for example in Africa. Fishing is mainly done by men, but the supply chain's part – drying,

processing of fish, smoking – is all women's work. And many indigenous peoples are coastal populations where fishing is a major part of their livelihoods. So especially for indigenous peoples and women, aquatic food systems play an important role.

Do you feel that with the Summit, the global narrative regarding food and nutrition has changed?

As far as the Summit's stance is concerned, yes. But now, we need to put solutions in place. This is all the more important as with Covid-19, the numbers of poor and malnourished people have increased tremendously. There are some obvious solutions that many have talked about, for example, school feeding programmes. We need to ensure that school feeding programmes reach the poor and vulnerable, and that here, we talk not only about rice or maize, but also about nutritious foods and a diversity of foods so that we can have children who are well-nourished, can do well in school and thereby can be an asset to their communities and their countries. It would be fantastic if we could combine school feeding with nutritious aquatic foods and have that as part of the solutions moving forward.

It didn't take a Food Systems Summit to make you a food systems thinker – the impact of your work has long been crossing over different disciplines and sectors, and it has been influencing politics as well. Can you give some examples?

One fascinating example is Odisha. People knew about my work in Bangladesh and asked me if I would go to Odisha with pond polyculture, which I did. In just three years, we were able to implement pond polyculture, school feeding programmes with dried fish, mother and child healthcare programmes and take-home rations with dried fish.

How was this possible?

Because the State Government – which is extremely progressive – could see the value in it and supported it. In Odisha, as in many rural parts of India, each village has a pond called the Gram Panchayat tank, which means the village community water body. We were able to get the State Government to allow us to introduce pond polyculture in 600 ponds. Each tank was allotted to a women's self-help group, each comprising ten women. We gave them the training and the support and staff, and they started doing pond polyculture with fish in these tanks. We did this for about two years. And last December, the State Government decided that all the 74,000 village tanks in the



Preparing fish chutney.

Photos: WorldFish

State would be allocated to women's self-help groups for pond polyculture. Can you imagine moving so fast in such a short time?

Women's empowerment through aquaculture, as it were ...

Yes. But there is still much more to be done. If we want to have a positive effect on women's livelihoods and women's income and nutrition, they must be represented throughout the whole system: at policy level, when you form the strategies and the interventions, but also when you do the assessments, asking what went right, what went wrong, how something can be done better. There is a big gap in this respect in all the ways we do development and use scientific knowledge. And the other important point is that we should be able to combine new scientific knowledge with traditional knowledge. Now, with all the tools we have available – data, new technologies – doing it should be easier. But it's still not done.

Why?

One thing is the knowledge, the next thing is how you extract it. We use our modern-day methods to extract traditional knowledge, as we do with scientific knowledge, whereas traditional knowledge rests on storytelling, for example. But we don't use storytelling in modern technologies. So we haven't been able to mesh those two.

Is the role of women in food value chains different in Africa and Asia?

No. But in Asia, there have been more groups working specifically with women and women's empowerment, for example, the Grameen Bank movement. Another fact is that in an African village, households are spread apart from each other. If you go to a village in Bangladesh or India or Vietnam, it's physically close, so it's easier for women to get together, learn from each other and be a group than it is in Africa. And if you take Bangladesh, for example,

which has progressed a lot regarding women's development, there is another reason. Everyone in Bangladesh speaks the same language, they all speak Bangla. So, it's easy to converse and work together.

You have also been distinguished for the development of innovative food products – by the 2021 Arrell Global Food Innovation Award. Can you tell us a little about this?

Where I started and what people call an innovation now is the pond polyculture. I was the first to say that when we do aquaculture in ponds, we shouldn't have just one fish species. And we shouldn't have just large fish species which are farmed but also small indigenous fish within the mixture. Everyone said: Oh no, the small fish will harm the growth of the large fish, and the production system will be less profitable. But I said: Let's try! And what we found out was that polyculture of large and small fish gives you greater quantity, greater nutritional quality – because the small fish come in with all the micronutrients – and a more resilient system because you are using different levels and different niches in the pond. And, importantly, you are not using chemicals to clean the pond, you can't do that because now you are using the indigenous fish species. So, it was a win-win-situation. But I also realised that one thing was having the fish in the pond, but another thing was moving the fish from the pond to the pot. We developed ways in which women would not depend on the men to harvest the fish. They themselves can have a net for the fish that they can pull with a pulley. This is how they can get small amounts of fish, take it to the kitchen and use it as part of the meal.

You also invented products like fish powder and fish chutney. What was the idea behind that?

When you are working in rural areas, people talk a lot about women's empowerment and women's engagement, but yet they do not look at their workload. With products that are nutritious and ready to eat, you can cut down the time for the women and also give them a constant source of nutritious food. If you make a chutney of high nutritional value, you can add it as a condiment to the main meal. Or when you prepare a porridge for the child, you can add a tablespoon of fish powder, then you will have a very nutritious meal. One of the very important benefits of products like these is that you are removing the moisture content. The food has a long shelf life at room temperature, and you can keep that for a long time, but most importantly, nutrient concentrations are increased four-fold. Getting much more nutrients in a very con-

centrated amount of food is extremely important for young children because their stomach capacity is quite small. The foods that are eaten in Africa are often bulky, with a low nutrient concentration. So again, with very simple solutions, you are addressing very grave constraints and eliminating or reducing them.

How do you get acceptance for these products?

First of all you have to use taste and flavour that match the community you work with. But once that is settled, you need to bear in mind that all parents and grandparents want their children to be healthy and smart. So already there you have a great degree of acceptance. If you can get the knowledge to the people in a way that they understand and show them the importance for the health and for the cognitive development of the child, then you have gone a long way. It is not as difficult as people think it is. It is just that they don't take the time and effort to be able to show the benefits.

One of the most difficult things with research is getting it to the ground and scaled. What is your recipe for success here?

Engagement with the communities. Finding solutions that fit with the communities and where they are engaged and also manage the solutions. One example is Cambodia, where we worked with the community refuge ponds – these are sanctuaries within the communities and are managed by them. In the dry season – we are talking about wetlands – you have these sanctuaries in the villages where there is water so that the fish and other aquatic foods can move there, and when the rains come, they move out. And regarding scaling, many years ago, I did pond polyculture in Nepal in the Terai. People only think of Nepal as a mountainous country, but 60 percent of the population live in the Terai, which is the same agro-ecological zone as Bangladesh. I took women from the Terai to Bangladesh so that they could learn about pond polyculture. And up to today they are still continuing. This is also the case in other areas. Before the pandemic, I had submitted an application to the United Nations International Fund for Agricultural Development stating that I would like to take some Cambodian farmers to communities in Kenya in order to work with them to organise themselves in groups of both women and men,



A woman using a mola gill net – an innovation developed by Shakuntala Thilsted – in Bangladesh.

construct and manage community fish refuges and discuss with them the multiple benefits.

What is the most exciting, the most satisfying part of your work?

Two things: working with the communities and seeing change, especially the acceptance of the benefits of the work I do for women and young children. The other part of it is the mentorship of young professionals and seeing others take the work I do to the full heights. It is so giving when you see that what you have done continues and grows.

And the most frustrating one?

Being able to attract the funding is pretty frustrating. And even when you get the funding it's still frustrating and challenging because it's small, and it's for a short period.

So what is next?

I want to put up a large programme looking at the nutritional value and food safety and the benefits for environment and climate of diverse aquatic foods, including seaweed. No-one has worked with this before in such a composite manner.

If you prepared an article on aquatic food, what would be the most important keyword?

Diversity. It's amazing. In our world, in our own life we want diversity, we don't want to eat the same food every day, we don't want to wear the same clothes every day, but yet, in a lot of our development schemes, we eliminate diversity. For me, diversity is the fundamental principle we must all use.

Shakuntala Thilsted was interviewed by Silvia Richter.