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## Q&A

### for **On-farm risks for resilient food and nutrition systems**

Professor Wendy Umberger

*Chair:* Nicola Hinder, Deputy Secretary, Agricultural Trade Group, DAFF

Chair: Nicola Hinder

Thank you very much, Professor Umberger. There were lots of things you said in your talk that really resonated with me. Among them, the recognition that agriculture goes beyond those we traditionally call our farmers and that it involves fishers and foresters as well. It is incredibly important.

Q: Peter Wynn, the Crawford Fund in NSW

Cary Fowler referred to the declining water availability in aquifers in many intensive agricultural areas of the world. Where do you think water stands in economic importance, as we face climate change, for smallholder farmers throughout the world?

A: Wendy Umberger

That's a challenging question. Water is obviously at the core of those challenges, not just in terms of having enough but also, as with salinity in the Mekong Delta, making sure it's good quality. It's not just irrigation and not just efficient irrigation, because dry-land areas survive without it. It can be a matter of looking at varieties to grow, to use in areas where you don't have the option to irrigate, or where in the future you may not have water to irrigate with.

In dealing with drought tolerance and varieties that can sustain good growth on limited amounts of water, I think Australia does an amazing job. I know the Grains Research & Development Corporation explores suitable crop varieties. There is also the possibility of building dams, such as in Laos where ACIAR has worked with Charles Sturt University staff and the Lao Government to build fish ladders to bypass dams on the Mekong. Dams affect the local ecosystem and biodiversity, and are problematic for communities that depend not only on that water but also on its fish and other aquatic fauna. We need to think about policies around sharing resources with biodiversity, and other ways to protect it. Water is of critical importance.

Q. Uwe Dulleck, Centre for Behavioural Economics, Society and Technology, QUT

I am interested in understanding behavioural, economic and technical barriers to resilience and innovation. If you talk about risk, the behavioural economist in me thinks 'we know that people have trouble making decisions on their risk and uncertainty'. Have you thought about that? And how does that inform your policy research in this space?

A: Wendy Umberger

You are talking to someone who is passionate about this. I am a behavioural economist at heart. I think there are probably several people in the room in addition to you who have done quite a bit of work on looking at risk preferences. For example, how do individual circumstances, individual risk profiles affect what someone does. You can teach somebody about risk management strategies, but whether or not they are going to change their behaviour is another question

altogether. Therefore, I think you can't rely only on education, because it doesn't matter how much we educate or inform people, we still need to put some buffers in there to deal with actual behaviour. And that's where policies are very important. Sometimes you need policies to address the fact that people aren't going to behave in accordance ... that some people have different risk preferences, and different ways of managing risk.

**Q: Sibjan Chaulagain, a Crawford Fund scholar at the Australian National University**

I come from Nepal, from a smallholder farm in a rural village of Nepal. All the discussion on smallholders at this conference resonates with me. You talk about different risks, and you also talk about migration. In a country like Nepal where most males migrate to Gulf countries to work as migrant workers, the families who were living in the villages tend to move to urban or semi-urban areas. So the river lands in the urban and semi-urban areas are being used for construction of buildings, whereas the lands that have been abandoned in the villages are useless. In ACIAR, have you done any research on how to deal with those kinds of risk?

**A: Wendy Umberger**

That's a very important and relevant topic that I personally have not worked on – that is, the issue of what's happening to the lands that are abandoned or that may be left with family members who don't have much experience in agriculture.

I know there's been work done, supported by ACIAR, in the policy area looking at how that land should be used. Some of that work has explored trying to get people to reinvest in agriculture, and policies for that, aiming to bring new entrants into agriculture. Another issue you see when people go to work, even in nearby cities, is that of overuse and misuse of chemicals, and misuse of water, and that creates other issues. So there is work but I am not sure that there are many answers yet. Different policies. Kym Anderson, probably, has done some work on that, and I think there's been a multidisciplinary project on the topic. It is definitely an area needing more work though.

**Q: Sabi Kaphle, Central Queensland University**

I work in public health and mostly midwifery is my background. Talking about food security issues, women and children in the lower- and middle-income countries, especially those who are in rural and remote areas, are impacted the most with high volumes of disease and associated mortalities.

So when you're talking about innovations, and focusing on solutions, what can be done in those remote communities? What other structural determinants play significant roles to improve their health outcomes as well as to improve their food security?

**A: Wendy Umberger**

Yeah, that's a very important question, and I have to be very much an economist and say, 'Well, it depends upon the situation'. It means understanding the women at the heart of the issue there. We need to be careful, when we are looking at development activities and development investments, to consider potential perverse outcomes. For example, if you're pulling women away from caring responsibilities, that leads to other issues in the household, and we need to think about that.

The other issue – and there is now, I think, a fair amount of work on this, but I'll use the Vietnam example I mentioned – in that project growing vegetables in a rice farming system, it was assumed that if we get women involved, and we diversify the household agriculture system away from rice

and incorporate more vegetables, more cash crops, the people will eat the different fruits and vegetables that are grown. However, those people are smart and, just like us, they look at what they can do in their households to get the most income because (as you hear if you talk to them in interviews about what's important) it's most important to get education and a diversity of food. To them, protein was very important, and getting new types of protein beyond the normal bit of fish. So going to the market, they would be selling the vegetables they'd grown, not consuming them. Vegetables were seen as not as valuable for consumption because they could be sold to make a lot of money in the markets. When the women had sold the vegetables they had grown, they were empowered by having the cash, which they might take home and share with their spouse. Their concern was that the spouse would either directly invest it back in the farm or, in some cases, use it for drinking or cigarettes etc. (That's not every household; those were things that we heard.) The women would go and buy meat and other sources of food that they viewed to be healthy.

However, the ACIAR project was in an area where there had been good work by not-for-profits, training the women on nutrition and on health and on causes of stunting. We were lucky to have a group of smallholders who had been involved in work with health experts and who understood development.

So, I think it's important to think about the setting of the household; also the culture. In some places where ACIAR has worked we simply don't have the ability to talk to women; there we need to find different ways of empowering the women in ways that are culturally sensitive.

Q: Angus Campbell, the One Health unit, Nossal Institute for Global Health, at The University of Melbourne.

One of the other big risks that has been touched on today has been pandemic risk and disease-spillover risk. It appears there's still little connection between work to make food production-systems secure and work towards production systems that are less risky for disease-spillover and neglected zoonotic diseases.

Could you comment on whether you think that disconnect is as strong as some of us perceive it to be? Are there opportunities that are currently being missed to make food systems and food production more resilient, better at managing risk, but also avoiding some of these future risks that seem to have a lot of global attention at the moment?

A: Wendy Umberger

I absolutely agree that we need to be investing more in the One Health area and combining those different areas of science. I think many of the disease issues that could result in pandemics do happen in smallholder systems or in developing-country settings where there could be massive disease outbreaks and biosecurity issues. So, I think we definitely need to be investing more in understanding those diseases in the One Health area overall. I think it's a critical area and one of those examples where that is truly transdisciplinary, and probably needs much more investment.

Q: Semy Siakimotu, Department of Agriculture Fisheries and Forestry

This is not really a question but more a comment. Prior to coming back to the department I worked as a biosecurity trade adviser for a program funded by the Australian Government. I agree with the comments you made around the challenges that smallholder farmers face in accessing the value chain and in relation to selling their products.

It seems to me – and this is a point I want to put as a challenge to the heads of organisations here in this forum – that a lot of the focus has been on developing capacity in these countries as it relates to food security, food nutrition. But there's very little support on the market side. I think that's the weak link. We try to empower smallholder farmers in relation to participating in value chains that are sustainable, but they have only so much to spend, and if the market is not paying, they're not going to spend.

I think the challenge for us as policy makers, as heads of organisations, is how do we work towards a market system that recognises the efforts that are being invested by these small farmers and these communities, so they can be rewarded, and so that the system continues to pay for the work they have put in?

Chair:

Please join me in acknowledging the great presentation that has been given today by Professor Umberger.