

**RESEARCH UNDER FIRE IN ALEPPO, SYRIA**

**Speaker: Mahmoud Solh**

October 12, 2016 - 3:15 p.m.

*Introduction*

**Ambassador Kenneth M. Quinn**  
**President - World Food Prize Foundation**

---

You're going to begin to see patterns in this that I turn to members of our Council of Advisors and our laureates to help me put together a structure and to shape our panels. And we have Margaret Catley-Carlson, who has been a member of the Council of Advisors and associated with the World Food Prize longer than me. And Dr. Gordon Conway, also from our Council of Advisors, and my friend, Mahmoud Solh is here. And I've just met Ambassador Patricia Haslach but so delighted that she's here and as well as Monica Maigari from Oxfam "Food Hero."

And so now we're going to have a presentation by Dr. Solh who was in Aleppo and was the man who had the research under fire. And to introduce him, my good friend and Council of Advisors member, Maggie Catley-Carlson.

**Margaret Catley-Carlson**

Vice Chair, Canada Water Network; Chair ICIMOD Policy Advisory Group (Nepal)

---

Thank you very much. Well, that was quite a rollercoaster ride, and now we have to switch to a case study in the real world. Mahmoud has 15 minutes, and I am supposed to introduce him. So I thought, well, you know, he's a very eminent person, and if I take ten minutes to introduce him to give you a full idea, that'll give him five. He didn't think that was a very good idea. So I'm going to give you a very quick introduction of a very eminent person.

We've had a real explanation of how the passions that shape the world in which we try and provide food security to everybody – the passions of insurgency, of violence, the passions that lead to movements of refugees, the passions of ethnic tension – all of these passions that play out so very much in the Middle East. We have had a look at the world, the tapestry behind it in the next presentation. But I want to go back and say that only a person with real passions could deal with the picture that we had in the first panel. Mahmoud is a person of very real passions.

His first passion is a consummate, deep knowledge and care and love for plants and the plant world and what he can do as a breeder as a plant protector, as an enemy of pests that have been around for as long as humanity. It is a deep passion, which I think is right within his soul.

The second one is that, although he's a citizen of the world, at home in universities in California and conferences around the world, in the corridors of power, in the FAO, in Rome, he's deeply

rooted in his region—in that frustrating, annoying, fascinating, fabulous, upsetting, terrifying, wonderful world of the Middle East. Whether you're talking about the Magreb, the Gulf, he is well rooted in that, and it's enabled him to master the complexities of working and living in that world, much to his benefit and but also particularly of ICARDA.

ICARDA, the International Center for Agricultural Research in the Dryland Areas—I chaired it for a while—and I'm pleased to say that this third passion that I want to talk about is ICARDA itself. He was a junior officer there, a medium officer there, he was the Director General, and I can't think of anybody better to reflect on how research might be part of the answers to really addressing some of the negative contending and difficult passions that we heard about.

So, my dear friend, Mahmoud, you have the floor.

## **Mahmoud Solh**

Director General, International Center for Agriculture Research in Dry Areas

---

Thank you, Maggie, for this introduction. It's certainly a pleasure and honor for me to address such a distinguished audience, and I would like to thank Ambassador Quinn and the secretary of the World Food Prize for this opportunity.

I will go very quickly. I budgeted 15 minutes, so I should get the 15 minutes, I hope. Okay, what I'm going to do, I'm going to introduce briefly to ICARDA. Then I will also talk about how did we manage to cope with the tragic situation in Syria, our host country, and then how the investment in agricultural research can help the conflict and post-conflict countries in coping with the tragedies they have been facing.

Of course, ICARDA is one of the 15 CGIAR centers with the strategic level outputs of reducing rural poverty, improving food security, improving nutrition and health, and contribute to sustainable management of natural resources. Our vision in ICARDA is to improve livelihood of the resource-poor in dry areas, and we do this through research and partnership to achieve sustainable increase in agricultural productivity and income, while ensuring the efficient and more equitable use and preservation of natural resources.

Our geographical mandate is nontropical dry areas, but we focus on the Middle East and North Africa. Of course, the dry areas are vast. They constitute about 40% of the world's surface, and they are the home of about 2.5 billion people, and they are the home of the poor of the world; 16% of the population live in chronic poverty, mostly in marginal areas. ICARDA is the only center that works in nontropical dry areas compared to other sister centers which work in different parts of the world.

Now, dry areas, as you know, they are fragile ecosystems. Physical water scarcity is a clear characteristic; rapid natural resource degradation and desertification is another one. Another challenge is the groundwater depletion, and then drought is becoming a common phenomenon as a result of the serious climate change implications.

Now, of course, the other challenge that we have is that we live in a politically volatile region. And we know very well (this is from IFPRI studies) that political security as well as financial and economic stability are critical for food security. And, of course, our part of the world, in the Middle East particularly and North Africa, face civil wars and conflicts.

Now, ICARDA headquarters was established in 1977, built on the Ford Foundation Arid Land Development Program, with about 1,000 hectare. With 630 staff members we left Aleppo, coming out of 43 nationalities. We do have a substation in Lebanon.

Now, these are slides quickly to show you the beautiful landscape and the research station that we really have in Syria before the tragic developments. This is our board of chair at that time, Dr. Maggie Catley-Carlson, integrating I would say the Borlaug and Havener Wheat improvement center. This is the biosafety facility that we have to work on genetic transformation. We have beautiful labs, very nice fields, and I want to say ICARDA was really working to enhance food security in a region that is, I would say, the highest food deficit region in the world.

Now, of course, this is the sheep unit that we have. We work on the small ruminants, and this is the destruction after the, I would say, 2012. The situation deteriorated in Syria in March 2011 in the South, but it didn't come to the North until July 2012. This is the labs of the sheep unit, which was really, I would say, completely destroyed. Fortunately, still the main buildings are still intact. This is how the machinery was treated, and this is really the GeneBank, which by a miracle is still operational two months ago. In this GeneBank, we have large, I would say, germplasm productions I will talk later.

The first thing that we did, we developed a contingency plan, which we implemented through 2011 and 2012. In this contingency plan, we have to save all our data, including the oracle database that we have in a cloud in California. We transferred the staff and their families to safe areas to continue implementing about 120 projects that we have outside Syria. The countries, Morocco, Tunisia, Egypt, Ethiopia, Jordan, Lebanon and Turkey hosted our colleagues, and we really appreciated that.

The GeneBank in ICARDA is very valuable, simply because it has the best, I would say, land races and wide relatives from four major regions of diversity. The Fertile Crescent, the Abyssinian Plateau in Ethiopia, and North Africa, Southern Europe and Central Asia. Our GeneBank holding, which is still in Syria, is 141,000 accessions, and we have currently 154. We did decentralize our GeneBank. Eighty percent of our germplasm is already saved in a Svalbard in Norway. This is how our germplasm is distributed all over the world, and these are the countries that benefit from the distribution. About 20,000 accessions are distributed on the average globally. We won the Gregor Mendel Award for the ICARDA effort in protecting the GeneBank collection in Syria.

Coming back to the decentralization, so what we did at the beginning, we did then put it in a location without much rationalization of the relocation. And then we did have a decentralization strategy, which was implemented in 2013 and 2016, and we established three major hubs. Lebanon became our, I would say, temporary headquarters; because we did have a host country agreement in 1977 with Lebanon. But the civil war in Lebanon made us go to Syria. And, ironically, the civil war in Syria drove us back to Lebanon. And the platforms are in Morocco on rain-fed cereal-based system and in Ethiopia on mixed integrated crop livestock system, and in India on food legumes. We have thematic research locations – Egypt for high-input integrated agriculture, and Turkey, Iran and Central Asia highlands for winter wheat with our sister center, CIMMYT, and winter barley and the highland program in Iran. And Izmir, Turkey, we do have the cereal rust research, original center, and in Sudan we work on heat tolerance.

This is the current setup that we have on locating the staff. This is the most relocation of the staff. We are doing some more consolidation this year in order to make sure that we are effectively using our resources in the Center.

Now, let me come to the most important part of my presentation – rebuilding agriculture in conflict-affected, and post-conflict countries, and countries with fragile economies. We have been doing that over many years, and I want to mention several countries we worked in, including Afghanistan. We included Iraq, Syria, Yemen, Somalia, Egypt, which is economically fragile, as you know, and Libya. And this is the hypothesis – I'm sure Dr. Per Andersen remembers this when he presented that in ICARDA in 2009. At that time he was thinking about African, Sub-Saharan African countries. The cost of doing nothing for those countries and the hypothesis that technological, institutional and policy changes in agricultural systems will contribute to food security, sustainable resource use, employment, economic growth and reduce poverty. And this will be reducing the underlying forces of conflict, migration and extremism, which is really very, very true and is reflected in the Arab world these days.

This shows the wheat production in Syria before and after, and I want to show you that Syria was an important country. And in 2004, 2006, it became an exporting country of wheat. But because of the drought and the war, look how the wheat production has dropped. These are the factors that contributed to this increase, and we use this in a project in ten Arab countries. This is recent between 2010 and 2015 and the ten Arab countries including, Egypt, Jordan, Morocco, Palestine, Sudan, Syria, Tunisia and Yemen. And the average increase in productivity across these countries in whole provinces, not with the farmer, was 28%, and the maximum increase was 75%. I want to mention that this is the example in Sudan. In Gezira Scheme, the increase was 43 to 163, higher than the farmer's average, while in the northern states, 27 to 79%.

The other interesting, I would say, achievement of this project is that producing more with less in Egypt. Using the broad bed farrow and the whole package of wheat, including drought tolerant varieties, we have reduced applied water by 30%, increased yield by 25%, reduced seed rate by 50%, and increased water, use efficiency by more than 70%. And this was adopted in six years on about 70,000 acres, and now the Egyptian government is planning to expand that to 1.8 million acres, or about 730,000 hectares by the year 2018.

The other very interesting work is the work on salinity. This is supported by Australia, USAID, and Italy. Salinity is affecting 50% of the irrigated areas in Iraq. And as a result of an integrated approach to cope with salinity at the regional and watershed level, at the irrigation district level and field-scale, we manage salinity through original irrigation and drainage management, reclamation, drainage and salt extraction, as well as living with salinity using salt-tolerant varieties as well as soil management and water management. And look at this picture. This is the salinity management. Look at the whole, I would say, state of Dujaila in April 1984, in April 2003, and in April 2014. You can see how we have reversed the land degradation in vast areas as a result of this integrated approach.

The other work that we have is Afghanistan where we are working on crop improvement and seed production, natural resource management, small ruminant production, capacity development, and entrepreneurship. We are working in eight provinces in Afghanistan, and we have released several varieties in wheat, barley, chickpea and lentil. And we have what we call village-based seed enterprises in 38 villages that produce high-quality seed, and two of those are run by women, which is very interesting. The other aspects is mint, which was really

introduced to cope with poppy production. The good thing about mint, you can distill that to produce oil and water mint, and the women can play a big role there.

This is His Excellency the Minister visiting that. This is a project supported by DfID. The other one is saffron, which is also very important production for the woman. Again protected agriculture is also a very important introduction to cope with the poppy production. This is conservation agriculture, which is very important for multiple cropping and capacity building in those countries. This is the last five years, how much capacity development we did in those countries, in Afghanistan, Egypt; Iraq you see is the highest; Libya; Syria is among the highest, Tunisia and Yemen.

And this is the most interesting slide where you see that females in the training in the country of Afghanistan are more than males. Similarly, for the field days where you see more females than males.

Now, the conclusion – no security on empty stomachs. And this is Dr. Norman Borlaug's principle.

And I want really to conclude by acknowledging and expressing appreciation for the valuable support of all the national partners, particularly Syria as a host country, Egypt, Ethiopia, Lebanon, Jordan, India, Morocco, Sudan and Turkey, and our sister center, ILRI, which hosted our livestock people. Of course, we also appreciate all the donors, particularly the CGIAR, the Arab and Kuwaiti fund who supported ICARDA at this difficult time in its history to continue its noble mission in dry areas.

You know, let me close by saying – supporting the research for sustainable development in conflict and post-conflict countries will secure a better future for the younger generation.

I'm running quickly because of the time – otherwise, I would have been much more relaxed with the 15 minutes. Thank you.