

*Strategy Paper*



*Progress Through Science*

# Sustainable Agricultural Development – IFAD's Experiences

*by*

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Agricultural Development  
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Rome, Italy

**Eighth TAAS Foundation Day Lecture**  
**August 5, 2014**



## **Trust for Advancement of Agricultural Sciences (TAAS)**

### **GOAL**

An accelerated movement for harnessing agricultural sciences for the welfare of people.

### **MISSION**

To promote growth and advancement of agriculture through scientific interactions and partnerships.

### **OBJECTIVES**

- To act as think tank on key policy issues relating to agricultural research for development (AR4D).
- Organizing seminars and special lectures on emerging issues and new developments in agriculture.
- To institute national awards for the outstanding contributions to Indian agriculture by the scientists of Indian and other origin abroad.
- Facilitating partnerships with non-resident agricultural scientists visiting India on short period.

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# **Sustainable Agricultural Development – IFAD’s experiences**

**Kanayo F. Nwanze**

**President of the International Fund for Agricultural  
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**Eighth TAAS Foundation Day Lecture**

**August 05, 2014**

Excellencies,  
Esteemed colleagues,  
Ladies and gentlemen,

1. It is my very great honour to be here today to deliver this Foundation Day lecture. In the 13 years since its establishment, the Trust for Advancement of Agricultural Sciences (TAAS) has developed a formidable reputation as a think tank for exploring the policy issues linked to agricultural development. It is a privilege to be here, on behalf of IFAD, to contribute to the discourse, and I would particularly like to thank Dr Paroda for inviting me to deliver this lecture.
2. Our topic today is sustainable agricultural development. It speaks to the heart of IFAD’s efforts to eliminate poverty and hunger, as well as TAAS’s goal of linking science to society.
3. Development is sustainable when it leads to inclusive economic growth, and when it respects and responds to local conditions – whether cultural or environmental – so that changes take root and persist long after the aid workers and development agencies have left. In other words, sustainable development delivers benefits that last.
4. For those of you not familiar with the International Fund for Agricultural Development, let me briefly introduce my institution. IFAD is unique in being both an International Financial Institution

and a specialized agency of the United Nations. We are the only institution in existence that combines an IFI's head for business with a soft heart for people – a UN agency's concern for rights and human dignity.

5. For more than 35 years, IFAD has been exclusively dedicated to eradicating poverty and hunger in the rural areas of developing countries. While others have dipped in and out of agriculture and rural development, it has been our constant focus.
6. You will find IFAD wherever there are poor rural people – including lower-income, middle-income or fragile states. Often, we work in remote regions where few aid agencies or IFIs venture. We always work in partnership - with governments, donors, NGOs, and of course, rural people themselves.
7. Today, I would like to share five lessons I have learned during my years at IFAD, as well as the 30 years I spent working in agricultural research for development (ARD) - including 10 years as a scientist studying the sorghum shoot fly in Hyderabad - and 10 years leading the Africa Rice Centre.
8. The *first lesson* is that **people must be at the centre of all research and development** efforts if we want to have sustainable results. This is as true for agriculture as it is for every avenue of development.
9. As development experts and scientists, we must remember that it is not enough simply to grow more food. We already produce enough food to feed every woman, child and man on the planet. Rather, we must ensure that the benefits of growing more food reach the people who need them most. And by this I mean not just the 2 billion people who depend on the world's 500 million small-scale farms. I also mean the additional millions of pastoralists, forest dwellers, fisherfolk and herders.
10. They are the ones who need to produce more and to produce better. They are the ones who need better nutrition, so their children can grow strong and become productive citizens. And they are the ones who need to produce food in a way that uses land and water resources sustainably, so that they can feed their families,

communities and nations. Not just for today or for tomorrow, but for generations to come.

11. Let me give you an example of people-centred development. Timor-Leste is one of the poorest countries on the planet. Two-thirds of the population is considered food insecure. It has 7 months of hungry seasons every year.
12. Low crop productivity has long been a problem, but when farmers were first offered higher yielding maize seeds, they hesitated. The farmers were losing 30 per cent or more of their stored maize every year to rodent and weevil damage. Why should they produce more?
13. IFAD helped answer that question by joining forces with the Timor-Leste Ministry of Agriculture and Fisheries and the Australian Government to provide better storage as well as better seeds.
14. The improved storage created an incentive for farmers to adopt high-yielding varieties, and to wait for the off-season – when prices are higher - to sell their surplus.
15. Through a combination of better yields and lower post-harvest losses, we expect food availability to increase by as much as 70 per cent.
16. As you can see from this example, technology on its own offers little. But technology combined with a people-centred approach can be life-changing.
17. As scientists and development practitioners, we must always ask ourselves: are we paying enough attention to smallholders? They form the single largest group of farmers in the world, but they are also too often among the poorest.
18. It is our moral and social responsibility to harness the best of pro-poor agricultural research so that it benefits smallholders, their families and communities.
19. And our work must also foster greater equality for all categories of rural people, especially women, who are playing an ever-increasing role in rural economies around the world. We know that when rural women earn money, they are more likely than men to spend it on food for the family.

20. Poor rural women typically work about 12 hours more per week than men. That's an extra day and a half of labour per week. Innovations that save women time are innovations that contribute to the health and wealth of rural communities.
21. We must also remember that research is not the prerogative of scientists alone. After all, it is the farmers who, for generations, have selected and conserved the best varieties of their crops. And what is more, Gregor Mendel, the father of genetics and Father Henri de Laulanié, the father of SRI, were not PhD graduates. They were scientists in the truest sense of the word – people who recognized the value of observation.
22. In a few minutes I will show you a film/video that illustrates my *second lesson* – **do not be afraid to think small**. It is sometimes the smallest interventions that, when scaled up, have the biggest results. For example, a fertilizer micro-dosing technique developed by ICRISAT and its partners is helping African farmers grow more food without exploiting the soil by using a bottle cap to measure out small, affordable amounts of fertilizer. The bottle-cap measuring technique means that even if farmers are illiterate, they can safely and easily apply the correct amount of fertilizer. It is an elegantly simple solution to an age-old problem.
23. Another simple technology supported by IFAD was the development of urea deep placement method in Bangladesh. It works by having farmers place mini briquettes of urea near the roots of the rice plants, rather than spreading urea over the surface of the soil. This helps release nitrogen throughout the growing season and allows for better absorption and efficiency of the fertilizer. At the same time, it reduces run-off and decreases the release of volatile greenhouse gases.
24. The technique has proved remarkably effective. Rice yields increased between by at least 23 per cent and in some places as much as 70 per cent.
25. Let me now take a few minutes to show you a video that illustrates better than anything I could say – short of taking you into the field in Bangladesh with me – how thinking small and taking a people-centred approach is making a big difference to thousands of families in Bangladesh.

## Video:

<https://www.youtube.com/watch?v=2NiR7f4ZtVg&feature=youtu.be>

26. As you can see, small fish are having a big impact on the nutrition and incomes of thousands of families. A project evaluation showed that child stunting had reduced by 16 percentage points as a result of the project. These are results to be proud of.
27. But even more importantly, they are results that are sustainable. Two years after the project closed, the local community is continuing to eat and cultivate these small fish. More than that, they are able to share their knowledge and resources with neighbours who were not part of the original project – extending the benefits to a much larger population. This is sustainable agricultural development in action.
28. At IFAD, we see time and time again the transformation that occurs when development is sustainable and when local people are involved from the start. And this leads to my *third lesson*: **Our starting point for sustainable agricultural development must be smallholder farmers.**

Ladies and Gentlemen,

29. There is a common misperception that small farms mean poor farms. Nothing could be further from the truth. Small farms predominate in rich countries such as Japan, Republic of Korea, Norway and Switzerland. Developing countries such as Thailand and Viet Nam have built their economies on small farms.
30. It is commonly believed that small farms are inefficient. This is simply not true. Here in India, to take one example, smallholders contribute more than 50 per cent of total farm output although they cultivate only 44 per cent of the land.
31. In farming, traditional economies of scale do not necessarily apply. In fact, small farms are often more productive per hectare than large farms, when agro-ecological conditions and access to technology are comparable.

32. Moreover, small farms contribute to community-building in ways that are essential to the health and wealth of nations, and that goes far beyond on-farm activities. Successful small farms provide jobs for unskilled laborers; they provide business opportunities in the non-farm rural sector – and, of course, they also provide food for their communities.
33. And smallholder family farmers are the custodians of much of the world’s agro-biodiversity, playing a crucial role in biodiversity conservation. When it comes to the preservation of species, family farms tend to grow a wide variety of cultivars, many of which are landraces.
34. In other words, we need small farms for maximum agricultural efficiency, particularly in countries where the land is not suited to larger farms. And we need them to preserve bio-diversity and to eliminate poverty and hunger.
35. But we must also remember that farming is a business, no matter the scale or size. Small-scale farmers are the main onfarm investors in agriculture throughout the developing world. They must be regarded and respected as equal and integral partners in development.
36. As I mentioned earlier, I have spent much of my career in agricultural research. Through my work as a scientist, and now at IFAD, I have learned that **agricultural research is an essential element of sustainable development** when it responds to the needs of poor rural people. This is my *fourth lesson*.
37. It explains why IFAD supports agricultural research through its grant programme, and why we have a dedicated Agricultural Research for Development window to support agricultural research institutions that are engaged in pro-poor policy and technological innovations.
38. The world would be a poorer, hungrier place without the discoveries that have gone from the lab to the field. For those who question the value of research or even of the CGIAR centres, 50 years after IR8, we have another product from IRRI – flood resistant rice. Today, some 5 million farmers are planting varieties of the Sub 1 rice, protecting their yields during years of heavy rainfall or flood.



39. The new IRRI rice is a good example of how scientific research and social applications go hand-in-hand. The Sub 1 rice can survive for up to two weeks under water. In parts of the world prone to flooding – such as Bangladesh, India and Nepal – planting Sub 1 means farmers can get good yields in years when they would expect to get nothing and go hungry.
40. Between IR8 of the 1960s, and the new rice varieties of today – NERICA and “Sub 1” – research and science has a rich inventory of technologies that have given hope to smallholder family farmers over several decades.
41. The list of innovations and discoveries is long and growing: some of them relatively recent developments such as Quality Protein Maize – which offers 90% of the nutritional value of skimmed milk – or the bio-fortification of important crops to address micro-nutrient deficiencies – such as Vitamin A in sweet potato and iron and zinc in other food staples – are making a difference to food and nutrition security.
42. So are new aquaculture technologies, such as improved Tilapia. Promising agroforestry technologies include “evergreen agriculture” where so-called fertilizer trees are interspersed with crops for better soil management.
43. New vaccines and other innovative technologies are helping farmers deal with a range of problems, such as Marek’s disease and Newcastle disease in Asia that could wipe out entire flocks of poultry overnight. Science has also brought under control the cassava mealy bug and the green spider mite and given us cassava mosaic resistant varieties that previously caused havoc in Africa and recently reached and threatened Asia too.
44. In addition, technologies that have been developed and applied successfully in sub Saharan Africa are now being deployed in Asia. Examples include the NERICA rices - with high resilience to the harsh conditions in states such as Rajasthan; and spate irrigation – which holds promise for areas of Punjab.
45. Of course, as scientists we must also consider the impact of our work on the physical environment. Agricultural research successfully drove

the first Green Revolution in Asia, has been shown to deliver rates of return that are above 40 per cent. But as we have seen in the decades that followed, too often it came at a great cost to the environment and local species. And all too often, the spectacular gains of early years could not be sustained.

46. We now know that agricultural growth must be ecologically sustainable. And we know that a diverse range of species, genetic variation and ecosystems is necessary so the land can provide for future generations of farmers.
47. This is where biotechnology comes in – an amazing tool, helping us to use science to tackle intractable biological or physiological stresses and challenges.
48. Agricultural biotechnologies, including Marker Assisted Selection, Marker Assisted Breeding, tissue culture and embryo rescue techniques offer many benefits. They can boost productivity, improve the tolerance of seeds and plants to drought, temperature stress and pests, and make nutrient use more efficient.
49. But we must recognize that biotechnology is only a tool. It is not an end in itself.
50. Indeed, in many developing countries, simply optimizing conventional approaches, such as the use of fertilizers and micro-irrigation, can yield dramatic results.
51. In the years since the first Asian Green Revolution, we have also become more aware of climate change and its impact on agriculture and smallholder farmers. In recognition of this, in recent years IFAD has been scaling up its support for climate-resilient approaches to agriculture and natural resource management.
52. In the state of Uttarakhand, for example, IFAD and the Forest Department worked together to promote community forest management. Participating communities adopted best practices for conservation to prevent soil erosion and encroachment into forests. Preserving the capacity to earn livelihoods in rural areas has proven to be a powerful incentive to protect the environment.

53. There is also room for rural entrepreneurs to benefit from the growing market in biofuels. An IFAD-supported project is helping improve the productivity of biofuel crops that have higher oil, starch or sugar content than conventional biofuel crops, and that do not detract from food production.
54. By developing market-ready products for green fuel – such as dry cakes and briquettes that are ready to burn -- the project is enabling poor rural women and men to improve their incomes and food security, while also having access to an affordable source of energy. IFAD is also promoting multipurpose trees and shrubs that can provide food, fertilizer, fibre and fuel – the five Fs – to meet a diverse range of needs.

Ladies and gentlemen,

55. These are exciting times to be working in agricultural research and development in India. The government's current five-year plan, with its ambitious targets for growth for the agricultural sector, underscores the seriousness with which sustainable agricultural development is being approached.
56. I would also like to commend the Government for giving a high profile to agriculture in the 2014 to 2015 budget, with a positive growth target of 4 per cent, and a commitment to step up both public and private investment. This all bodes well for the future of the sector.
57. Let me now share my *fifth, and final lesson* for sustainable agricultural development, which is that **Poor rural people are not looking for charity**. Handouts do not build strong communities or nations; instead [or, quite the contrary] they increase dependency. Resilience is built through partnershipbased approaches that respect the dignity of project participants and foster ownership. Only in this way can we ensure our efforts in agricultural development will be sustainable.

58. I have presented you with my five lessons, but they all have their basis in one central fact: small family farms are not just a thing of the past; they are the way of the future. Small-scale farmers are not helpless victims. They are a powerful force. Our job is to provide them with the right tools so that they can end poverty and hunger and drive the economic growth of their nations.

Thank you.

## Recent TAAS Publications

- ❖ Brainstorming Workshop on “Emerging Challenges before Indian Agriculture - The Way Forward”, March 6, 2009 - Proceedings & Recommendations.
- ❖ Brainstorming Workshop on 'Strategy for Conservation of Farm Animal Genetic Resources' 10th – 12th April, 2009 – Ranchi Declaration.
- ❖ Brainstorming Workshop on “Climate Change, Soil Quality and Food Security”, August 11, 2009 – Proceedings & Recommendations.
- ❖ Millions Fed: Proven Successes in Agricultural Development, January 19, 2010 (Translation in Hindi jointly published by IFPRI, APAARI and TAAS)
- ❖ National Seminar on “Quality Seed for Food Security through Public-Private Partnership”, April 13-14, 2010 – Proceedings & Recommendations
- ❖ TAAS Foundation Day Lecture on “Climate Change and Food Security: From Science to Sustainable Agriculture” by Dr. Mahendra M. Shah, May 7, 2010
- ❖ NSAI Foundation Day Lecture on “Revitalizing Indian Seed Sector for Accelerated Agricultural Growth”, October 30, 2010
- ❖ Brainstorming Session on Prospects of Producing 100 million tons of Wheat by 2015 and presentation of Fifth Dr. M.S. Swaminathan Award for leadership in Agriculture - Proceeding & Highlights December 18, 2010
- ❖ National Dialogue on Building Leadership in Agricultural Research Management, Hyderabad, August 27 - 28, 2010 - Proceedings & Recommendations
- ❖ Stakeholders' Interface on GM Food Crops, May 19, 2011 - Recommendations
- ❖ TAAS Foundation Day Lecture on “Harnessing Knowledge for India's Agricultural Development” by Dr. Uma Lele, August 12, 2011
- ❖ Strategy Paper on "Implementing the International Treaty to Address Current Concerns about Managing our Plant Genetic Resources" by Dr. R.S. Paroda. January 23, 2012

- ❖ The Sixth Dr. M.S. Swaminathan Award Lecture on "Challenges and Opportunities for Food Legume Research and Development" by Dr. M.C. Saxena, January 25, 2012
- ❖ Proceedings and Recommendations of Farmers' Led-Innovation. December 23-24, Hisar, Haryana, 2011
- ❖ Proceedings and Recommendations of Global Conference on Women in Agriculture. 13-15 March, 2012 New Delhi; India.
- ❖ The Seventh Foundation Day Lecture on "Ensuring Food and Nutrition Security in Asia: The Role of Agricultural Innovation" by Dr. Shenggen Fan, DG, IFPRI. January 11, 2013
- ❖ Proceedings & Recommendations of "Foresight and Future Pathways of Agricultural Research Through Youth" March 1-2, 2013
- ❖ Strategy Paper on "Managing Our Water Resource for Increased Efficiency" by Dr. R.S. Paroda. May 28, 2013
- ❖ A Brief Report on Seventh Dr. M.S. Swaminathan Award presented to Dr. William D. Dar, DG, ICRISAT, Hyderabad. June 24, 2013
- ❖ Proceedings and Recommendations of "Brainstorming on Achieving Inclusive Growth by linking Farmers to Markets", June 24, 2013
- ❖ Strategy Paper on "The Indian Oilseed Scenario: Challenges and Opportunities" by Dr. R.S. Paroda. August 24, 2013.
- ❖ Proceedings and Recommendations of "National Workshop on Outscaling Farm Innovation", September 3-5, 2013.
- ❖ Recommendations of Brainstorming Workshop on "Soybean for Household Food and Nutrition Security", March 21-22, 2014.



## **Kanayo F. Nwanze**

### **President, International Fund for Agricultural Development**

On 13 February 2013, Kanayo F. Nwanze was appointed, by acclamation, as the President of IFAD, for a second four-year term of office. A Nigerian national, Nwanze has a strong record as an advocate and leader with a keen understanding of complex development issues. He brings to the job over 35 years of experience across three continents,

focusing on poverty reduction through agriculture, rural development and research.

Under Nwanze's guidance, IFAD has stepped up its advocacy efforts to ensure that agriculture is a central part of the international development agenda, and that governments recognize the concerns of smallholder farmers and other poor rural people. As an intellectual leader on issues of food security, Nwanze has been a member of the World Economic Forum's Global Agenda Council on Food Security since 2010, and formerly chaired the group.

During Nwanze's tenure, IFAD has increased the number of outpost country programme managers and country offices. This heightened field presence enhances IFAD's direct supervision of its projects, benefiting Member States, partner institutions and project participants alike. As a result, IFAD has become a valued and results-focused international development partner, is delivering a much larger programme of loans and grants, and extending its reach to more people.

Nwanze served as IFAD's Vice-President for two years before taking the organization's helm. Prior to that, he was Director-General of the Africa Rice Center for a decade. Nwanze was instrumental in introducing and promoting New Rice for Africa, or NERICA, a high-yield, drought- and pest-resistant rice variety developed specifically for the African landscape. He also transformed the Center from a West African to an Africa-wide organization with a global reputation for excellence.

In addition, Nwanze has held senior positions at research centres affiliated with the Consultative Group on International Agricultural Research (CGIAR) in Africa and Asia, and played a key role in establishing the Alliance of CGIAR Centers as a vehicle for collective action.

Nwanze earned a Bachelor of Science degree in Agricultural Science from the University of Ibadan, Nigeria, in 1971, and a Doctorate in Agricultural Entomology from Kansas State University, United States, in 1975. He has published extensively, is a member of several scientific associations and has served on various executive boards. Nwanze has received numerous honours and awards from governments and international institutions – including Commander of the National Order of Merit of Côte d'Ivoire, Officer of the National Order of Benin and National Order of Agricultural Merit of France – as well as academic acknowledgements, including Doctor of Science, *honoris causa*, from McGill University, Canada.



Investing in rural people



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