

Biofortification to face up to the Zero Hunger Challenge

Prof. M.S. Swaminathan delivered the Keynote Address on “Achieving the Zero Hunger Challenge & the Role of Biofortification” during the Second Global Conference on Biofortification, at Kigali, Rwanda on April 1, 2014.

In a scenario, where 2 out of 5 children in South Asia are stunted, there is need to tackle malnutrition with great urgency. To achieve the UN Secretary-General's vision of “Zero Hunger” by 2025, challenges of climate change, reduction in land and water resources for cultivation, expanding biotic and abiotic stresses and reluctance of youth to take to farming, need to be overcome.



Prof.M S Swaminathan with Prime Minister of Rwanda at the Conference

Professor Swaminathan's central message was that agriculture-based innovations such as the development of nutrient-rich crops through biofortification are critical to eradicate hunger.

The major approaches of the biofortification route suggested by Professor include use of:

1. Naturally occurring biofortified plants like moringa, sweet potato, nutri-millets and fruits and vegetables.
2. Biofortified varieties selected by breeding and selection, eg, iron rich pearl millet and zinc rich rice. Genetically biofortified crops like Golden Rice and iron rich rice (after appropriate regulatory clearance)

Given its current success and its promising prospects, biofortification will be important in achieving the zero hunger challenge in an era of biohappiness, said Prof. Swaminathan.

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Borlaug Centenary Dialogue emphasizes on climate change

When farmer Gopalsingh Solanki from Madhya Pradesh got up to speak, the weathered lines on his face and his traditional kurta were expected. However, when he pulled out a power-point presentation before the scientific international audience, with tables and images, he made it evident that farmers are taking to technology. Solanki and some of his peers were delegates at the Norman Borlaug Centenary Dialogue at M S Swaminathan Foundation in Chennai in March 2014. Breaking another stereotypical image of “male farmer” is Kalaivani Rajendran from Tamil Nadu with her short hair, saree and impassioned speech who voices her views on challenges that farmers face and on how small farmers can be encouraged to stop them leaving this profession.

These and various challenges were part of discussions among participants of the Dialogue on “Take it to the Farmers” from March 13 – 15. Over 150 delegates



Delegates at Borlaug Centenary Dialogue

from across the country, including some international, participated in a series of sessions and presented trends in moving to food security. Speaking at the Concluding Session, Prof. M S Swaminathan emphasized the need to mainstream the concept of “Take it to the Farmer” by empowering farmers with knowledge and know how to enhance their production, productivity and profitability.

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Recalling Gandhian Philosophy for Reviving Rural Prosperity



Shri Gopalakrishna Gandhi Releasing Dr Narayan Hegde's Book

The need for a holistic approach, adopting Gandhian philosophy of empowering communities and addressing the weaker sections based on their skill and resources have been highlighted in the book “Gandhian Approach to Rural Prosperity”. Authored by Dr Narayan Hegde, Trustee, MSSRF and Principal Advisor and Trustee, BAIF, the book was released on April 12th, by former West Bengal Governor and grandson of Mahatma Gandhi, Shri Gopalakrishna Gandhi. The function took place at M S Swaminathan Research Foundation in Chennai and presided by Professor Swaminathan.

The book spread over 16 chapters, covers the rural development

initiatives of Mahatma Gandhi and subsequently, the programmes initiated by the Government of India and various Non-Government Organisations across the country.

Shri Gopalakrishna Gandhi appreciated the efforts of the author in reminding everyone of the need to go back to Gandhian values and principles to solve the problems of the world.

Professor M S Swaminathan in the foreword to the book, remarks “The Sarvodaya approach assumes particular relevance today in the context of growing social and gender inequity. The urban - rural divide in terms of access to basic amenities like education, roads, toilets, sanitation and healthcare is increasing. This is one of the principal causes for the persistence of poverty and hunger.”

Dr. Narayan Hegde has, in the book, summarized the approach of BAIF in providing food security and sustainable livelihood to rural poor especially through management of natural resources. He has also shown the means by which younger generations can be attracted and retained in farming and allied activities and how poverty can be reduced and eliminated through sustainable livelihoods. The book further highlights the need for providing solutions to specific problems at the micro-level.

The book will serve as a reference manual for Government and Non-Government Organisations engaged in food security, natural resource management and rural development across the country.

MSSRF placed 2nd in Global WAF Award 2014

As a global recognition of the Foundation's work in water and food security initiatives, M S Swaminathan Research Foundation, was placed second at the global Humanitarian Water and Food Award (WAF) for its Community Managed Bio industrial Watersheds initiative. WAF promotes global best practices in water and food security initiatives. Founded in 2008 and based in Copenhagen, Denmark, WAF's activities span the globe. WAF evaluates solutions that have met the criteria sustainability, innovation, empowerment, scalability, replicability, social and environmental impact for at least two years.

The MSSRF initiative took up the challenge of intervention in five regions of India that suffered food shortages because of soil erosion and degradation. Lowered production, crop diversity and employment had led to migration. MSSRF mobilized 5,000 locals – water users, paddy and pulse farmers, and women's self-help networks. The groups shared knowledge and skills to develop a holistic farming system. This intervention resulted in mobilization that empowered community groups to increase



Dr. R. S. S. Hopper, Director Ecotechnology, MSSRF receiving the WAF award .

holistic agricultural production, improve water harvesting structures, and stimulate local enterprise. MSSRF was declared runners-up in list of over 70 applicants worldwide. Of these, 11 were shortlisted and 5 were finalists.

This intervention has already received two National awards – National Water Prize and Groundwater Augmentation award in 2012. The WAF award has added the international dimension of recognition for this piece of work at MSSRF.

Dr. R. S. S. Hopper, Director (Ecotechnology), MSSRF received the award from HRH Princess Basma bint Ali of Jordan at London on 18th June 2014.

BUILDING SHARED OWNERSHIP: Improving Nutrition through Agriculture



Delegates at MSSRF-LANSA's all India Stakeholder Consultation, at New Delhi

Candid participation from agriculture and nutrition stakeholders marked MSSRF-LANSA's all-India stakeholder consultation at National Academy of Agricultural Sciences (NAAS), New Delhi on April 9. This meeting was a follow-up of 23 interviews with policy-influencers from different sectors and aimed at building shared ownership with stakeholders by understanding agri-nutrition linkages and disconnects in India. There was participation of high-level officials from Government, Research institutes, UN agencies, industry and media, at the event.

Dr S Nagarajan, Agricultural Advisor, and Ms R V Bhavani, Programme Manager, gave an overview of research studies undertaken by MSSRF in India. Evidence reviews and findings

from the stakeholder interviews were presented by Stuart Gillespie, Senior Research Fellow, IFPRI / Research Director, LANSA. An open forum on research gaps followed and steps for further action were drawn up. Dr Kalpagam Polasa, Director - National Institute of Nutrition (NIN), Hyderabad, and Dr Neelam Grewal, Director – Directorate of Research on Women in Agriculture (DRWA), Orissa, shared examples of good practice. Discussions were encouraged within the framework of four key questions proposed by Prof M S Swaminathan surrounding agriculture, nutrition, gender and age, as well as the UN target of 'Zero Hunger'.

Stakeholders expressed their views on dietary diversity and food habits in the country. The importance of gender, involvement of the private sector, and the need to improve dialogue between decision-making departments also emerged as key concerns.

Announcing LANSA's first Responsive Window calling for policy-related research proposals, Gillespie talked of agri-nutrition pathways, methodology and conclusions from the landscaping analysis. This was the first major national event for LANSA-MSSRF towards inviting stakeholders to validate or critique findings as a learning experience. Moving forward, Dr Ajay Parida, Executive Director underlined the importance of keeping stakeholders informed of LANSA's plans and progress.

APM team attends Food Security Dialogue and Writeshop at University of Alberta, Canada

A 14-member team from the Alleviating Poverty and Malnutrition (APM) project participated in the Food Security Dialogue at the University of Alberta, Edmonton, Canada from 30 April to 2 May 2014. The programme was funded by the International Development Research Centre (IDRC) and Department of Foreign Affairs, Trade and Development (DFTAD) which also supports the APM project under the Canadian International Food Security Research Fund (CIFSRF).

The Dialogue was organized to observe the International Year of Family Farming and attended by CIFSRF funded project partners from Africa, Asia, Canadian universities and International donor and think tank organisations. The Dialogue provided an invaluable experience of understanding global food security issues and efforts taken by local governments, research institutes and NGOs.

The MSSRF team was invited for four oral presentations and seven poster presentations related to food



APM team during the Food Security Dialogue at the University of Alberta, Canada.

and nutritional security – the major concerns of the APM project from the three agrobiodiversity hotspots. The talks and posters ranged from community based institutions, knowledge empowerment of farmers, gender, fishery and wild food. Two posters were appreciated and presented with the Best Poster Awards selected by jury and the audience. Dr. Madhura Swaminathan, Chairperson delivered a plenary talk on the crisis facing small farming in India.

The project team also attended a *Writeshop* at Banff, Canada from 4 to 6 May 2014 to enhance their writing skills for scientific audience. The writeshop was a combination of discussion talks and guidance from resource persons. In partnership with UoA, the MSSRF APM team will be bringing out scientific papers shortly on some of the key research outcomes of the APM project.

Apart from the experience of the team members making a visit to Canada to personally engage in the dialogue and workshop, the visit also helped in bonding with research partners, networking with other organizations and institutes and strengthened the team's vision on poverty and malnutrition.

Inauguration of Vikash Maha Sangha at MSSRF, Jeypore

Facilitated by MSSRF, the Farmer Producer Company in Jeypore region of Koraput district, Odisha named VIKASH MAHA SANGHA (VIMAS) was inaugurated by Dr. Narayan Hegde, Trustee MSSRF & Chairman BAIF foundation on 19th May, 2014 at MSSRF, Jeypore. The logo of VIMAS was launched by Dr Ajay Parida, Executive Director of MSSRF. VIMAS aims to create an apex level organization by federating organized groups (farmers groups, farmers clubs and Self Help Groups etc under different projects) into producer groups as base unit.

So far 660 farmers have enrolled in VIMAS paying Rs.10 as membership fee and with shares of Rs.100/- each. An institutional structure has been formed by election of a Chairman, Board of Directors. As representative of the foundation, Dr. S.V.Ramana will coordinate and play the role of Managing Director of VIMAS. The formation of this company will help the farmers as it can improve the input and output linkages, said Dr Hegde. Dr Parida stressed the need to build capacity and allied activities for greater livelihood enhancement measures. Over 400 farmer members – men and women from the district attended the event and elected their Board of Directors and representatives.



Members of Vikash Maha Sangha (VIMAS) during inauguration at MSSRF, Jeypore, Odisha

Borlaug Centenary Dialogue

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The detailed deliberations among farmers and academicians resulted in the following recommendations.

The **International Year of Family Farming 2014** is an opportunity to improve lives of millions of smallholder farmers and indigenous communities.

- Breeding for stress tolerance has opened up opportunities for **Climate Resilience Agriculture**.
- **Value Chain Development** should receive high priority to enhance income from farming.
- Appropriate policies required to make agriculture a **credible career to the youth**.
- Producer Companies, Commodity Centered Associations, Womens' self help groups and others help in **Conferring Power of Mass Production**.
- **Gender dimensions** to be integrated in agricultural participatory researches, policy design, implementation, monitoring and evaluation.
- Greater emphasis needed for **Farmers' Access and Control** over natural resources.
- Investments and policies for **Building Capacities** to be in place for farming communities and organizations.

Bioblitz: with photographers in Wayanad



As part of observing International Day for Biological Diversity, MSSRF in collaboration with Kerala Forests & Wildlife Department (Social Forestry Wing) organized Bioblitz – to photo document the biodiversity of Manikunnumala. Nine photographers from the region took photographs of the flora and fauna of Manikunnumala. They presented the photos before a panel of judges, who evaluated them on the basis of their biodiversity importance and photographic skill.

'51 Agriculture Success Stories in Wayanad' for sharing innovations



Shri N S Saji Kumar, DDM, NABARD, Wayanad releasing the 51 Agricultural Success Stories

'51 Agriculture Success Stories in Wayanad', a book on innovative agriculture practices which are economically viable, ecologically sustainable, replicable and bankable adopted by selected 51 farmers of Wayanad district was

released by Shri. N. S. Saji Kumar, DDM, NABARD, Wayanad at a function in March. The book details the story of 51 farmers who considered agriculture as an entrepreneurship activity. The book features farming operations from 'Seed to Seed', agricultural operations of nine major crops (pepper, coffee, cardamom, paddy, banana, mushroom, tuber crops, flower, and fruits) and four animal husbandry ventures (dairy, fishery, apiary and rabbit) are discussed in this book in addition to integrated farming and soil & water conservation programs. The book covers the successful farmers in zero budget natural farming to modern agriculture alternatives like precision farming.

The 51 farmers were selected based on survey conducted in 25 Grama Panchayat and a Municipality of the district. The book will facilitate farmer to farmer learning and interactions. The address and contact numbers will serve as a means for aspirant farmers to reach the farm lands of innovative farmers. The farming activities explained in this book can be adopted throughout Kerala. Prepared after one and half years of extensive survey and discussion with selected farmers, the efforts of Mr. Joseph John (Scientist MSSRF) and Dr. N. Anil Kumar (Director, CABIC Wayanad) gave shape to the book.

MSSRF's mobile app for fisherfolk bags South Asian award



A mobile application of MSSRF that helps fisherfolk manage their livelihood better with information on weather, schemes, potential catch and borders has been awarded the mBillionth South Asia Award 2014. Supported by Qualcomm and in partnership with Tata Consultancy Services, the app developed by MSSRF was selected from among 300 entries from 9 South Asian countries. The award was given at a function on July 18 in New Delhi.

The mBillionth award an initiative of Digital Empowerment Foundation, is a dedicated platform to recognize innovators, who are socially empowering the lives of people through the use of ICT and digital media tools across South Asia.

Fisher Friend Mobile Application is a technology innovation for the fishers. The application is developed in Tamil and Telugu on android and provides real time information on Potential Fishing Zone, Global Positioning System, Ocean State Forecast, Weather Forecast, Disaster Alert, market price, government

schemes and News Alerts. These services help them reduce risks, mitigate livelihood asset loss and earn economic benefit.

Speaking on the award, Ms. Nancy J Anabel, Director IEC, MSSRF said, "It is a significant recognition of team work and of the results we have seen. Through this journey of technology, over 40 fishermen have been rescued at sea as the Coast Guard was able to locate their exact position while adrift at sea."

Ph.D. Award for Ms. S.Velvizhi



Ms. S.Velvizhi was awarded Ph.D. from Centre of Advanced Study in Marine Biology, Parangipettai, Annamalai University Tamil Nadu, India on the topic "Socio-economic and livelihood study of mangrove-dependent Irular tribal fishers of Pitchavaram, Southeast coast of India, with special reference to women". Currently she coordinates the Fisher Friend Programme of IEC division.

Ph.D Award for Rajkishor Mahana



Mr. Rajkishor Mahana, scientist working under the APM project at the Biju Patnaik Medicinal Plants Garden and Research centre, Jeypore was declared qualified for the Ph.D degree in Anthropology with effect from 27-5-2014 by the University of Madras. His thesis is titled "Resisting Domination – Conflicts over development and tribal movements in contemporary Orissa."

Action plan for addressing health ailments among salt workers



A consultative meeting held at MSSRF on June 26 suggested a three-pronged action plan to address occupation-related health ailments among salt workers.

The plan included:

- A pilot initiative setting up toilets, drinking water and protective gear to understand the practical

- Facilitating healthcare at the district level through mobile health vans, free surgery support and fortified salt to the workers
- Long-term plans including setting up a separate wing in hospitals, linkup with schemes of women's development corporation and a working group for policy level decisions.

Recalling the salt marches during the freedom struggle, Professor M S Swaminathan, said "It was a struggle for freedom then, it is a struggle for freedom from occupational hazard now. We need to put faces before jobs. There is need for awareness, analysis and action."

A high prevalence of occupation-related ailments was found during a study by a team from JIPMER in partnership with MSSRF among salt workers of Vedaranyam. The findings included high prevalence of eye infections, besides other occupation-related ailments.

Dr Ajay Parida, Executive Director, MSSRF said the Foundation in addition to ecological restoration and village development focus, addresses health issues where as 23 of 49 intervention villages were involved in salt production and process. MSSRF has a healthcare programme with support of Society for Integrated Coastal Zone Management of Ministry of Environment and Forests, Government of India and World Bank.

This consultation brought stakeholders – from the Salt Commission, Health, labourers, unions and others working in these regions across the table to discuss the issues.

Dr Sowmya Swaminathan, Director, National Institute for Research in Tuberculosis spoke on working conditions in salt pans including lack of basic water or toilet facilities leading to many problems, especially for women.

Dr R S Kashyap, Deputy Salt Commissioner, Chennai, highlighted health programmes of Salt Commission of India and urged the State to follow the "Gurajat model" with welfare schemes for salt workers including water supply, rest sheds, health camps and safety kits for labourers.

Salt workers from Vedaranyam such as Anjammal shared their experiences and struggles over years. They urged officials to help them with regard to lack of sanitation and medical problems.

Dr S Balasubramanian, Joint Director Health and Family Welfare, Government of Tamil Nadu suggested providing mobile medical vans and healthcare facilities and greater co-ordination with Village Health and Sanitation Committees. Dr Selvam, Director Coastal Systems Research suggested that MSSRF would facilitate this co-ordination at the field level.

Ensuring safe drinking water to tribal households in Odisha



For tribal households in Koraput in Odisha, safe drinking water is a difficulty. Keeping this in mind, a project to conserve water, recharge ground water levels and use for domestic consumption was supported by Department of Science and Technology, Government of India. The project is implemented by MSSRF, Jeypore in partnership with Central soil and water conservation research and training institute (ICAR), district water testing laboratory, rural water supply & sanitation, directorate of water management (ICAR) and central ground water board. It aims to ensure safe drinking water to 634 HHs covering nearly 4000 population in 10 villages of Boipariguda and Kundra blocks in Koraput district, Odisha.

Drinking water is harvested from bore wells through submersible pumps and stored in overhead tanks of 3,000 to 6000 liters capacity, from where water is supplied through pipes. Recharge filters as per technology developed by CSWCRTI are constructed near bore wells for recharging ground water. 70 community water soldiers and 8 water user groups were created in 8 villages to monitor the use of water, resolve conflicts and ensure sustainability. 8 mini rain gauge systems were installed in 8 villages to record the rainfall data and one portable water testing kit is available to measure contamination.

In June, 2014, Dr. Narayana Hegde, Trustee, MSSRF, inaugurated three community managed drinking water supply projects at Chendia-Jhiligaon, Nuaguda and Tentulipar village.

Dr Sanjaya Rajaram winner of World Food Prize for 2014

Distinguished plant scientist, Dr Sanjaya Rajaram is the winner of the prestigious World Food Prize for 2014. Announcing this in Chennai, Professor M S Swaminathan, Founder MSSRF and Chair of the Global Jury for the World Food Prize, said "It is a pleasure to announce that the World Food Prize winner, is a person whose remarkable work saved millions of people from hunger and poverty. As a successor of Norman Borlaug, it is fitting that Dr Rajaram's work gets this recognition, in a year when we are celebrating the centennial year of Borlaug." Professor Kesavan, Distinguished Fellow MSSRF spoke about the student years of Dr Rajaram on the occasion.



The formal announcement of the winner was made at the U.S. State Department, by Secretary of State John Kerry and Ambassador Kenneth M. Quinn, President of the World Food Prize Foundation. The \$250,000 World Food Prize is considered as "the Nobel Prize for food and agriculture" and is the foremost international award recognizing an individual who has enhanced human development by improving the quality, quantity or availability of food in the world. Since Professor Swaminathan won the first World Food Prize in 1987, so far, 6 Indians have won this prize over the years.

In the News



Dr Ajay Parida receives Padma Shri



Dr. Ajay Parida receiving Padma Sri from the President

It was a proud moment for MSSRF when Executive Director, Dr Ajay Parida received the Padma Shri award from the President of India. Dr Parida, received this distinction for his contribution to science and engineering

which has significant impact on agriculture. His work on use of biotechnological tools for crop improvement, particularly for adapting to salinity stress and drought tolerance has enormous potential, specially to address agriculture productivity in the context of climate change. His research has made important contribution to the basic understanding of the genetic architecture and species relationship in mangroves and wild relatives of cultivated cereals, legumes and few cultivated crop species. Passionate about the application of science and technology for rural development, Dr Parida is a well-known policy expert in agriculture, biotechnology, biosafety and capacity building. An elected fellow of the National Academy of Sciences and National Academy of Agriculture Sciences, India, he is also the recipient of national and international awards including the Umakant Sinha Memorial Award, the BM Birla Science Prize, the National Biosciences Award, NASI Reliance Award, TATA Innovation Fellowship and Recognition Award from the National Academy of Agriculture Sciences. The Padma Shri recognizes his contribution and dedication to science and technology in India.

Asia-Pacific Conference on Family Farming to be held at MSSRF

Peter Kenmore, FAO Representative in India, and Professor M S Swaminathan announced the details of the UN-declared International Year of Family Farming Asia Pacific Regional Conference in New Delhi. The conference is to be held at MSSRF Chennai, from August 7 to 10, 2014.

There are over 500 million family farms across the world, making up over 87% of all farms. Their significance is also due to the fact that family farming is generally characterised by diversified cropping patterns, including crop-livestock-fish integrated farming.

“In the atmosphere of need to shift from food to nutrition security, the International Year of Family Farming provides a unique opportunity towards achieving this at the national and global level,” said Professor Swaminathan.

“The United Nations looks upon this year as an opportunity to revitalize family farming traditions to take forward the overall goal of combating hunger across the world. In this context, the Asia Pacific Conference aims to bring together global experts to consult on ways and means to achieve the Zero



Hunger Challenge by 2025,” said Peter Kenmore, FAO Representative in India.

The regional consultation is organized by M S Swaminathan Research Foundation in partnership with Food and Agriculture Organization of UN(FAO). The International Development Research Centre, World Food Programme, International Fund for Agricultural Development and Other national and international agencies are jointly supporting this effort. Speakers from across the world will deliberate themes ranging from the economic, ecological and social sustainability of family farms, gender relations and enhancing profitability to nutritional dimension of family farms. Technology, skill and information needs of the Family farms will also be discussed to ensure enhanced livelihoods and assured income for small farm holders in the region. The deliberations will lead to the adoption of the “Chennai Declaration”.

Conference Agenda

The family farming conference has five plenary Sessions that will deliberate on the following themes:

- Environmental, social and economic sustainability of family farms.
- Family Farming and Gender Relations
- Enhancing Profitability of Family Farms
- Making Every Family Farm a Nutri-Farm by mainstreaming the nutrition dimension
- Technology, Skill and Information needs of Family Farms

Four Thematic sessions will focus on issues related to productivity, profitability and sustainability of the Family Farms in different ecosystems with gender dimensions and impact of climate change being the cross-cutting area. These include:

- Coastal & Marine Ecosystems
- Hill and Mountain Ecosystem
- Irrigated Ecosystem
- Rainfed and Semi Arid Ecosystem

The outcome of these discussions will be presented in plenary session on August 10, 2014. About 200 delegates are expected to participate in the conference.



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